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ON

SURGICAL DISEASES

OF

WOMEN.

BY THE SAME AUTHOR,

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ON SCARLATINA:

ITS NATURE AND TREATMENT.

ON

SURGICAL DISEASES

OF

WOMEN.

BY

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SENIOR SURGEON TO THE LONDON SURGICAL HOME FOR DISEASES OF WOMEN;
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TO

SIR CHARLES LOCOCK, BART., M.D.

FIRST PHYSICIAN-ACCOUCHEUR TO THE QUEEN,

THE FOLLOWING PAGES

ARE INSCRIBED,

AS A TRIBUTE OF RESPECT TO HIS HIGH PROFESSIONAL STANDING,

AND AS A GRATEFUL ACKNOWLEDGMENT OF THE

MANY ACTS OF KINDNESS AND ASSISTANCE SHOWN BY HIM,

DURING THE PAST TWENTY-FIVE YEARS,

TO HIS FAITHFUL AND OBLIGED FRIEND,

THE AUTHOR.

5958

PREFACE TO THE FIRST EDITION.

There is no branch of Surgery more open to improvement than that which relates to those accidents and diseases incident to the female sex, which admit of no relief except from the hand of the surgeon. In the standard works on Midwifery and the Diseases of Females, these surgical diseases are for the most part but imperfectly discussed, and their treatment is often described in few words, and without any suggestions to direct the surgeon through the difficulties and dangers of the more important operations proposed for their relief. Nor has there yet been published in this country any work specially devoted to the consideration of these difficult, and, for the most part, exceedingly distressing cases.

On some of the diseases in question, it is true, we have not only admirable articles, scattered over the pages of our periodical literature, but also full and well-written treatises; and to the authors of these I gladly acknowledge my obligations. With regard to other diseases, however, of not less urgency and importance, I have sought in vain for any useful information in books, and have been thrown, of necessity, on my own resources. It is to the diagnosis and treatment of the latter class of cases that the bulk of this volume is devoted; although the former are not passed over with neglect, especially where I felt able to

add any details of practical importance to what is already known concerning them. The treatise makes no pretensions to completeness. The subject is by no means exhausted. I have, however, endeavoured to present a clear and practical description of all the more recent improvements in this branch of Surgery; and I take leave of the subject, not without the hope that much greater advances will soon be made by abler hands than mine.

I. B. B.

17, *Connaught Square, Hyde Park,*
1854.

PREFACE TO THE SECOND EDITION.

The sale of the previous edition of this work, and the flattering manner in which it was received by the Profession and noticed by the Press, afford evidence that the subjects it treated of were of no small importance and interest, and that it supplied a defect in the surgical literature of this country.

In putting forth this Second Edition I have endeavoured to render the book still more worthy of the attention of my Professional brethren, both by the addition of new, and by the careful revision of the previous matter. Indeed, the impetus to the study of the Surgical Diseases of Women has been of late so great, that, had I even received less encouragement in my previous endeavour to promote it, a revision of the contents of the first edition would have been required to convey an account of the many improvements in the modes of operating, and in other particulars. Moreover, the longer and much wider experience I have since had, has enabled me to confirm many and to correct other points of practice, to improve upon old methods of operating, and to suggest new ones, and to add a very much larger number of cases illustrative of the curative measures I adopt and confirmatory of their value.

To show more clearly the improvements and additions in this present edition, I will enter into a few particulars. New

chapters or sections have been added on Intra-uterine Fibrous Tumours, on Hypertrophy and Irritation of the Clitoris, on Cauliflower Excrescence of the Uterus, on Certain Diseases of the Rectum Producing or Simulating Uterine Disorder, and on Certain Surgical Lesions connected with Sterility in the Female. The chapter on Ruptured Perinæum has been thoroughly revised, and the operation for its cure illustrated by eighty-one in place of eighteen cases. To the account of Vesico-vaginal and Recto-vaginal Fistula much has been added; these sad, and, of old, most intractable lesions being now readily amenable to treatment by a surgical operation which has reached a high degree of perfection and precision. In the last edition my experience with the operation for vesico-vaginal fistula had been limited to four, but I am now able to record the history of forty-two cases which have fallen under my own care.

The account of Tumours of the Uterus has been much enlarged; their pathology more fully considered, and those of the intra-uterine form rendered much more practically interesting and important by the description of a plan for their successful treatment. All the cases illustrating this plan are now for the first time published. Leaving out of sight the additions made to the history of the several surgical conditions comprised in the chapters on Operations on the Uterus, and on Operations upon the External Sexual Organs, I may direct attention to the detailed history of fifty-five cases of cystocele, rectocele, and prolapsus uteri—a number, moreover, which might have been considerably larger, had not some of my case-books at St. Mary's Hospital been surreptitiously removed and lost to me.

Passing to the concluding chapter on Ovarian Dropsy, I will say of it that it has received my best attention; that the pathology of the disease has been much more copiously examined, and that the number of illustrative cases operated upon has been largely extended, particularly those of Ovariotomy, of which I have had twenty more than described in the last edition. I hope, therefore, this chapter will continue to merit the commendation it so largely received when it first appeared.

There is another advantage in enumerating these particulars besides demonstrating the improvements in the present edition —viz., that by so doing I make an appeal to experience, and put the chief merit of the book in its being a mirror of clinical observation—a practical treatise on some most important surgical operations, the value of which is discoverable in the record of appended cases.

My previous large experience at St. Mary's Hospital has, during the past three years, been greatly added to by the opportunities of observation afforded me in the wards of the "London Surgical Home," in which I have had twenty beds constantly occupied by cases of the severer forms of disease treated of in the pages of this work. And I cannot, in mentioning this institution, forbear expressing my recognition of the valuable and ready co-operation and assistance of my professional colleagues on its staff, as well as of some other practitioners who have been interested in its practical working and efficiency, viz., Dr. J. Hall Davis, Mr. T. W. Nunn, Mr. Philip Harper, Mr. Wratislaw, Mr. Spencer, Dr. Menzies, Dr. Giles, and Dr. Tulloch.

In conclusion, I would commend this treatise to the members of the Medical Profession, not as a recondite treatise on

the pathology of the several affections considered in its pages, but as a contribution to practical surgery; and with the hope that its publication may serve to advance and perfect the means of cure for a number of diseases ranking among the most painful to which woman is subject.

I. B. B.

17, Connaught Square, Hyde Park,
May 1st, 1861.

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PRELIMINARY OBSERVATIONS.

THE Surgical Diseases peculiar to Women treated of in the following pages are divisible into two sections—viz., I. Those which mostly result directly or indirectly from parturition; II. Those which occur independently of pregnancy.

I. Under the first section are classed:—

1. Rupture of the Perinæum.
2. Vesico-vaginal Fistula.
3. Recto-vaginal Fistula.
4. Laceration of the Vagina.

II. Under the second section:—

1. Prolapse of the Uterus.
2. Prolapse of the Vagina: Cystocele—Rectocele.
3. Tumours of the Uterus: Fibrous—Other varieties.
4. Other Surgical Lesions of Uterus: including Hypertrophy of Os Uteri; Imperforate Os Uteri; Stricture of Os Uteri; Displacements of Uterus.
5. Stone in the Female Bladder.
6. Lesions of External Sexual Organs: including Imperforate Hymen; Encysted Tumours of Labia; Hypertrophy of Clitoris; Vascular Tumour in the Meatus Urinarius.
7. Diseases of the Rectum resulting from certain conditions of the Uterus.
8. Certain Diseases of the Rectum simulating Uterine Disorders.
9. Certain Surgical Lesions connected with Sterility in the Female.
10. Ovarian Tumours.

The lesions included in the first section had, prior to the date of this work, received little attention in this country, and were very widely regarded as beyond the scope of the surgeon's art, on account of the serious difficulties and numerous disappointments which had always been encountered in the attempts to cure them. Hence most of the sufferers were allowed to drag on a life of much distress and misery, without prospect of relief in most cases, cut off from society and from domestic comforts and enjoyment. But within the last ten years the operation for the cure of perinæal lacerations, to which I devoted so considerable a section in my previous edition, has become fully recognised by the Profession, and is constantly carried out with nearly invariable success; and now, in this present issue of my work, I am able to describe and largely illustrate an almost perfect and invariably successful operation for the still more distressing injuries known as vesico-vaginal and recto-vaginal fistulas, which were, indeed, only a few years since, considered as practically beyond the pale of surgery.

Among the diseases of the pelvic viscera of the female comprised in the second section are several of well-nigh as distressing a character as those already alluded to. Indeed, the prolapse of the womb, of the bladder, or of the rectum into the vagina, may entail as great an amount of misery as does rupture of the perinæum, with which, in fact, each of those displacements is often associated, and it is an important advance in surgery to be able to point out means for their permanent relief or complete cure. But it is a still greater triumph of modern surgery to have devised an operation for the cure of intra-uterine fibrous tumours, which involved not only a great sacrifice of comforts and enjoyment on the part of the patient, but also much suffering and pain, and, above all, which always tended to destroy life in a shorter or longer time.

The other subjects embraced in the several other chapters of this second section, if less serious and less distressing in their character than those which have passed under review, are highly deserving the best consideration of the medical practitioner; and it is hoped that the remarks made on them, and

the operative measures suggested, will be found instructive and useful. In the chapter devoted to ovarian tumours (a subject which has occupied my particular attention since 1830), I have endeavoured to expound and elucidate, step by step, in as comprehensive and practical a manner as possible, the real and comparative value of the various expedients which, in modern times, have been adopted for the relief and removal of a distressing, and ultimately fatal disease, formerly considered beyond the reach of surgical skill; and I take this opportunity of briefly recapitulating what I had published on the subject during ten years preceding the last edition of this work.

In the year 1830, I read a paper at the Physical Society of Guy's Hospital, on "Extirpation of Ovarian Cysts." This paper was a translation (by Mr. Hilton) of a paper sent to that Society from Wilna, in Poland. Since that period, it has been my constant endeavour to devise means by which this disease might be destroyed without an operation dangerous to life. Most of these expedients have been, to a certain extent, successful; but as there are cases in which the most simple means are the most eligible and valuable, so there are others in which the operation for ovariotomy is requisite and justifiable.

In the year 1844, I published in the *Lancet* my first paper "On the Successful Treatment of Ovarian Dropsy, without the Abdominal Section." In discoursing on the various plans for extirpation of the tumour, in the introduction to this paper I expressed the opinion, that I did not think any of these severe operations were justifiable till the one I there proposed, or some similar plan of treatment, had been tried. It will, therefore, be seen, that I have never condemned extirpation, partial or entire, but have only endeavoured to draw attention to other plans less hazardous before resorting to that extreme procedure.

In the same year I published further remarks on the same subject, in reply to objections which had been brought against my views.

In the year 1848-9, I wrote a series of four papers, in which I took a review of all the cases, successful and unsuccessful, which had occurred in my practice; and, as I think, completely refuted certain misstatements which had been made in order to

depreciate the value of my cases by discrediting the facts; an attempt as weak as it was uncandid, for it happened that one or more of my professional brethren whom I met in consultation on the cases, *were eye-witnesses of every fact which I had published.* Attempts, not less disingenuous and discreditable, were likewise made to throw doubts on the correctness of my diagnosis, which proved equally abortive.

The next two papers (published in 1850) were "On the Diagnosis of Ovarian Dropsy;" and in November of the same year I published a paper "On the Treatment of Ovarian Dropsy, by the Production of an Artificial Oviduct;" and in 1852, some papers "On the Treatment of Ovarian Dropsy, by excising a Portion of the Cyst."

It will be seen that in the following pages I have endeavoured to institute an impartial examination of the comparative merits of these methods of treatment, and the conditions of disease which may render each, or any of them, specially applicable. I have also added a practical account, with cases, of the operation of extirpating the whole tumour; and have endeavoured to show in what cases, and under what circumstances, this formidable operation is justifiable.

Several of the lesions considered in the following pages have been so thoroughly treated of by others, that I have deemed it unnecessary to enter into detail respecting them; and have accordingly restricted myself to the practical suggestions I have to offer as to their causes, diagnosis, and treatment. This will, for instance, account for the apparently superficial description of the varieties of prolapsed uterus, polypus uteri, &c., lesions which are considered mainly with reference to the peculiar plans of operation I propose for their cure.

I would here acknowledge the great advantage I have derived from the able work of Dr. Fleetwood Churchill on "Diseases of Women," and would refer my readers to it for those particulars which the peculiar character of my present work excludes.

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ON

SURGICAL DISEASES OF WOMEN.

CHAPTER I.

LACERATION OR RUPTURE OF THE PERINÆUM.

THIS is doubtless one of the most distressing accidents of labour, and needs not the aid of many words to recommend it to our best attention; and although, thanks to improved skill and medical knowledge, it is an accident of comparatively infrequent occurrence, yet I presume, few, if any, medical men fail to meet with it, in greater or less severity, in the course of their practice. Be this as it may, it is a duty undeniably incumbent upon every surgeon and accoucheur to make himself thoroughly acquainted with the characters and causes of this lesion, and more especially with the means devised for its relief.

The Frequency of the Accident.—What is its relative frequency among parturient females I have no data to show. The slighter degrees, which demand no particular treatment, are certainly common, especially in *primiparæ;* and I apprehend that the severer forms are more frequent than is generally supposed, often being, from the natural modesty of women, and from despair of obtaining relief, kept secret with the sufferers. No doubt can be entertained of the particular proclivity of *primiparæ* to the accident; in fact, it is no more than might naturally have been predicted.

Thus, of the eighty-one patients who were operated upon for rupture of the perinæum, as hereafter detailed, as many as fifty-four of them were primiparæ. Again, on taking this fact into

relation with the ages, as far as reported, it is seen that of sixteen who suffered from laceration between the thirtieth and fortieth year, so many as ten were confined for the first time. There is indeed one who had her first child in the forty-fourth year of her age.

To sum up the statistics of age in the comparatively limited number of cases of lacerated perinæum, which, as an individual, I am able to bring forward from my own practice, there are 10 who were 20 years of age and under; 28 above 20 and under 30; 16 between 30 and 40, and 3 between 40 and 45. All those 20 years old and under, who had suffered from laceration of the perinæum were primiparæ; of those above 20 and under 30, 25 of the 28 were primiparæ.

The numbers available are insufficient for precise statistics of much value, but the comparatively large proportion of cases of ruptured perinæum in women thirty years of age and upwards, in labour for the first time, is deserving remark, though it be indeed a circumstance readily explicable, considering that the age is an unfavourable one in an obstetrical point of view for primiparæ.

Structure of the Perinæum.—Without entering into details, it is as well to describe briefly the general structure of the *perinæum*. This region extends from the fourchette of the vagina to the anus, and varies in length, from an inch to an inch and a half, in the quiescent state; but it will measure from four to five inches when put on the stretch during labour, so extensible are its tissues. It consists of skin, fascia, and muscular fibre; the last made up of the constrictor vaginæ, transversalis perinæi and sphincter ani muscles, all of which meet at, and, in fact, have their common insertion at the centre of the perinæum. By this arrangement it follows that, when divided in the line of their common centre, as is the rule, these muscular fibres must by their contraction draw asunder the sides of the fissure. More deeply seated are the deep fasciæ and the levator ani muscle. From their attachments the fibres of this muscle will evidently also assist in separating the edges of a perineal laceration. The firmness of the perinæum depends on the tonicity of the muscles, the elasticity of the skin, and particularly on the strength of the fascia.

Varieties of Ruptured Perinæum.—Four varieties of ruptured perinæum are distinguishable:—1. That in which the perinæum is torn to the extent of an inch or less from the fourchette. This degree of injury is of no great moment, is little marked when the parts return to their quiescent or normal state, and requires no special treatment.—2. Where the perinæum is torn between the constrictor vaginæ and sphincter ani, those muscles remaining intact. This is actually a *perforation* of the perinæum, and, in some rare cases, has given passage to the child.—3. Where the laceration occupies the entire length of the perinæum, but does not penetrate the sphincter ani. And 4. Where it extends so as to divide the sphincter ani, and even the recto-vaginal septum. It is this last form which constitutes so heavy a calamity to the patient, and has hitherto been found so little amenable to treatment.

M. Velpeau remarks (*De l'Art des Accouchements*), that two different lesions are generally confounded together under the title of rupture of the perinæum—viz., perforations and fissures; the former (*perforations centrales*) existing where the sphincters of the anus and vagina are unbroken; the latter (*fentes vulvaires*) where the sphincters are involved and the fissure invades more or less the rectum. Laceration of the perinæum is peculiarly an accident of childbirth; yet it may possibly occur from external violence. Some may imagine that such an accident at parturition ought not to occur in the hands of a careful practitioner, an inference, however, not countenanced by the records of obstetric medicine. It has occurred in the practice of the best accoucheurs, and some of its causes can neither be obviated nor removed.

The causes of laceration of the perinæum are distinguishable into those peculiar to the mother and those to the child, and are further divisible into predisposing and exciting. Of the latter the more remarkable are, the injudicious or improper employment of instruments to facilitate delivery; the use of manual force; clumsy manipulation in aiding the passage of the child through the os externum, and more particularly of the shoulders; sudden and violent expulsive action of the uterus before the external parts are properly dilated, or whilst the

patient is in an unfavourable position for delivery, as standing, or when assistance is not at hand.

These exciting causes are found in the condition of the parent; but others depend on the dimensions of the child, both absolutely, and also relatively to the capaciousness and expansibility of the maternal outlet. Thus we have among such causes unusual largeness of the whole child, or of its head only, as in hydrocephalus; or the presence of twins, or an unnatural presentation. On the other hand the course of the labour may be natural, the dimensions of the parts concerned in parturition sufficient, the bulk of the child unincreased, and the uterine contractions normal; and yet the perinæum may give way owing to an unnatural state of its tissues, either peculiar to it, or caused by too much meddling during the process of labour. Such predisposing conditions of the perinæum are, 1, an unnatural rigidity of its tissues, which are found hot, dry, thin, and unyielding; or, 2, a structural peculiarity in which the perinæum is thick, undilatable, and readily torn, a state usually accompanied by a general flabbiness of the muscular tissue of the patient, and debility.

Again, with or without an exciting cause, the conformation of the perinæum and vaginal outlet, or that of the pelvis, or a misplaced uterus, or pelvic tumours, may predispose to, and indirectly cause laceration. Of such structural peculiarities I would particularly mention that form of the perinæum in which this part is extended so far, that it becomes distended and driven before the advancing head of the child like a bag, the os externum meanwhile remaining nearly quiescent; in other words, the propulsive efforts of the womb drive the child's head against the broad surface of the perinæum instead of towards the external outlet.

Further, when after the child's head is forced down upon the perinæum, the labour is prolonged considerably, whether from mismanagement or not, there is a great disposition to rupture on account of the long stretching of the tissues; so much so that if more active uterine contractions come on, or an attempt to deliver by instruments be made, the overstretched and weakened tissues rapidly give way. Lastly, in parturition,

at a very early, or at a late age for the first time, we have another predisposing cause of ruptured perinæum.

In thirty-one of the eighty-one cases of rupture detailed in this chapter, instruments are recorded as having been employed to facilitate delivery, and as having more or less directly caused the injury. In two or three, indeed, the sudden onset of violent uterine contractions after the application of the instrument, is stated to have been the more immediate cause of the accident, by the rapid propulsion of the child, together with the instrument, through the external parts. The vectis was the instrument employed in one instance; in all the others, except two, in which the instrument is mentioned, the forceps. In one of these two exceptional cases, craniotomy was resorted to; and in the other, according to the patient's statement, a boot-hook was used, undoubtedly in the absence of proper instruments.

In all probability, instrumental means of delivery were employed in some other of the examples of ruptured perinæum recorded, but were overlooked in collecting their history, or lost sight of by the patients in narrating it.

In six women the cause was rapid delivery before aid could be obtained; and in two or three others it is noted that it was the sudden onset of violent uterine contractions after a tedious labour that did the mischief.

Of the operation of an unnatural presentation and of an unusual bulk of the child as causes of ruptured perinæum, we have several examples; of the former in five, and of the latter in four instances. An abnormal condition of the perinæum and an undue constriction of the vaginal outlet are assigned as causes in several instances; the latter particularly, in the remarkable example of perinæal perforation. Turning was resorted to in two patients, and at least contributed to the accident; whilst in two others this was due to improper dragging of the child through the pelvic outlet. Lastly, in two of the cases no assistance at all was at hand at the time of labour, and in as many as six, a midwife only was in attendance. This last number, however, is not strictly correct; for in some of the other cases in which instrumental aid was put into requisition by medical men, and produced the laceration, the patients had

been previously attended by women, who had either mismanaged the labour or allowed it to be prolonged so much, that the rupture of the overstretched and weakened tissues was in all probability well nigh inevitable, notwithstanding the most skilful application of instruments.

As the question has been mooted how far ergot of rye is an indirect cause of laceration of the perinæum, I may reply that that drug, injudiciously administered, may certainly be a cause of the accident, by inducing violent uterine contractions and a too rapid expulsion of the child. In a like manner other medicinal or physical agents, or the age, or various conditions of health of the mother, may interfere with parturition, and act as remote causes of rupture; the description of such, however, would involve details unsuitable to the present treatise, and are, moreover, well given in the works of various accoucheurs.

Prevention of Rupture.—It happens that there is considerable difference of opinion amongst accoucheurs with respect to the management of the perinæum during the last stage of delivery. The old authors on midwifery all recommend supporting the perinæum with the hand alone, or with a napkin; others object to this plan, as causing a reflex nervous action from the perinæum to the uterus, whereby the latter is excited to greater expulsive efforts, and consequently, to the exertion of greater tension on the perinæum. This objection, no doubt, in a great measure holds good; for it is certain that frequent interference to support or press against the perinæum, or to examine *per vaginam,* does keep up an injurious excitement of the uterus, and increase its expulsive efforts. Yet it is equally true that, where the head is pressing downward and backward—*i.e.,* on the rectum and perinæum—the hand should be steadily applied, so as to guide the head forwards under the arch of the pubes through the external parts.

Where rigidity of the perinæum opposes the advance of the child, various remedies have been proposed to overcome it, as bloodletting, tartar emetic, warm fomentations, and greasy substances; but since the introduction of chloroform into practice I have never resorted to any of them, because I have found

that in ten minutes, in the very worst cases, the parts have become dilatable when that agent is administered by inhalation.

In those instances of elongated perinæum in which the head distends that structure like a bag, and cannot be driven forward, it is necessary not only to support the perinæum with the greatest care, but also to introduce the thumb and forefinger of the right hand as far as the vertex, so as to be able to give a forward direction to the head, and to guide it through the external parts, and at the same time to protect the fourchette, where rupture is most apt to occur, from excessive pressure.

Where, lastly, the contractions of the uterus are so violent as to threaten precipitate delivery, the passages being unprepared, the uterine action must be restrained by the inhalation of chloroform, or, where this is contraindicated, by the administration of opium. Having these resources at hand, I would consider bloodletting inadmissible, and tartar emetic a means of reducing uterine power unadvisable.

In cases where rupture seems inevitable during delivery, Dr. Blundell recommended and practised the plan of relieving the tension of the perinæum by a slight lateral or oblique incision during a pain; thus actually producing a laceration, but one of no moment, if it serve, as intended, to prevent the tear along the median line, where it naturally takes place, and proves of serious consequence. This plan I concur with, and would practise where chloroform failed, or could not be administered.

M. Chailly-Honoré places particular stress on duly supporting the perinæum during the delivery of the shoulders; stating, as his belief, that most lacerations occur at that time from the neglect of such support. In two of the cases hereafter recorded, the exit of the shoulders caused the rent; and so again it was the rough attempt to deliver the shoulders which, in M. Verhaeghe's third case, did the mischief. This reference to experience does not, indeed, confirm Chailly-Honoré's opinion, but it demonstrates the importance of giving due assistance at this stage of delivery, by showing that laceration is then a not unusual result. It is again an obvious rule to induce women to moderate their efforts at expulsion during the passage of the head of the child.

I need not extend my observations on the means of obviating the causes of laceration, since they are well treated of in most books on the art of midwifery.

Consequences of Rupture.—The consequences entailed by a laceration of the perinæum will depend on its extent: they may be slight and temporary, or so severe as to render life miserable: the latter only require to be detailed, and to any one who attentively considers the relative anatomy and functions of the parts, they will seem very obvious. The triangular chasm of which the perinæum forms the floor, has the rectum, tending downwards and backwards, as its posterior wall, and the vagina, passing downwards and forwards, as its anterior; consequently, when the two lips of a ruptured perinæum are drawn asunder, the prominent convexity of the posterior wall of the vagina is brought into view with its transverse rugæ; and when the injury is of old date, this is much hypertrophied and hardened. Again, the laceration may have penetrated so as to lay open the vagina, tearing asunder the sphincter ani and recto-vaginal septum, thus converting the two canals into one.

Acting as the perinæum does in antagonism to the downward pressure of the diaphragm on the abdominal and pelvic viscera, its laceration deprives the latter of their natural support; hence the proclivity to prolapse of the uterus, of the bladder, and of the rectum, and their attendant symptoms—dragging pains from the loins, interference with the functions of the bladder, leucorrhœal discharges, incapability of exertion, even of ordinary exercise, inability to go up or down stairs. Again, when the sphincters are torn, their functions are lost, and the fæces and intestinal gases pass uncontrolled; hardened fæces may certainly be in a measure retained, but when the evacuations are at all fluid, they will usually escape quite involuntarily, and penetrate into the vagina and adjoining parts, and the afflicted person is then necessarily confined to her house or room, excluded from all society, and her existence rendered miserable. Nay, the consequences of the lesion may even induce disgust on the part of the husband towards his unfortunate wife, and render her companionship odious. No patients, indeed, ought to be more the objects of our profound com-

miseration, and of our liveliest sympathy. If any condition could incite us to devise remedies, it surely would be this, in which the patient may have all the bodily and mental functions in health and vigour, but be by this accident so cut off from all the pleasures and comforts of existence, that death seems preferable to life, and any means appear justifiable and are sought for which promise temporary quiet or oblivion.

Difficulties of Treatment.—The difficulties to be overcome in the treatment of laceration of the perinæum, were, up to the date of publication of the first edition of this work, generally regarded as almost insurmountable. This impression led to the common practice of leaving the injury to nature; and not only so, but the frequent failure of operative proceedings induced many eminent surgeons to oppose altogether their adoption; nay more, as Dr. Barnes writes (*Lancet*, vol. ii. 1849), "An eminent obstetric author has sought to console his brethren under the disappointment of baffled art, by assuring them that it is better not to cure the whole laceration." In short, I have heard a physician-accoucheur, whose obstetric works are well known, assert that, through a long life, he has never seen a case bad enough to require an operation. And I regret to say he is not the only practitioner who has felt called upon to ignore and decry an operation which has been the means of restoring to soundness and health several scores of females, who, prior to its performance, were among the most wretched sufferers. Such opposition is, in fine, unaccountable, save on the supposition that its authors are insensible to evidence, or determined not to receive it.

The situation of the wound, its nature, the structure of the parts involved, and their relations; the time which may have elapsed since its occurrence; the retraction that usually occurs: the difficulty of effecting apposition for a sufficient length of time to insure union; the irritation, inflammation, and even sloughing apt to occur in some constitutions; the greater tendency to the growth of mucous membrane than to union by the first intention, or even by granulation; and the difficulty of the management of the bowels and bladder during the healing process, present so many and great obstacles in the way of

success in the endeavour to restore the integrity of the parts by any surgical operation, that the most skilful attempts have often been frustrated, and many bad cases abandoned as hopeless. However, I have continued for several years to demonstrate, by the records of ample experience, that none of these impediments or difficulties are insurmountable, but that, on the contrary, the operation required for the closure of lacerations of the perinæum is actually a simple one, and readily performed. And at the present day there are many surgeons who can bear me out in this assertion, either having witnessed my practice, or having, by the instruction conveyed in the previous edition of this book, themselves performed the operation with success. On this matter I may refer to the records of the operation in the public journals, showing its wide adoption by the surgeons of public institutions, as well as by other practitioners, and among them Dr. Daniel Parker, of Nova Scotia; Dr. Bozeman, of New Orleans; Dr. Keiller, of Edinburgh; Mr. Greaves, of Manchester, and others, who can testify to the value of the operative proceedings described in this, and the previous edition of this work.

SURGICAL HISTORY OF THE SUBJECT.

I cannot profess to write a complete history of the various attempts which have been made in past periods to remedy the sad lesion under notice, but will content myself with an outline of the principal plans devised that have come within the compass of my own reading and observation. To commence, I may remark that, among ancient medical writers, those who have mentioned the injury treat of it as irremediable.

Celsus speaks of lacerations about the vulva, and of recto-vaginal fistula, but does not describe the severe form of ruptured perinæum. For the relief of those injuries which he mentions, he recommends absolute rest, the tying of the legs together, and other general measures to favour the natural disposition to heal. And with reference to all but comparatively recent days, it may be stated generally that no operation was attempted to bring about union of the torn parts.

German Writers.—Excepting Dieffenbach, German surgeons appear to have studied the subject but little. It has certainly been often enough the theme of dissertations or theses of students proceeding to their degrees: but, so far as I can discover, has been rarely a matter of practical research by those so situated as to be able to contribute to our knowledge. Indeed —and the remark applies not to Germany only, but also to France and England—neither the anatomy nor physiology of the perinæum has been sufficiently attended to in its bearings on the accident in question: how accurately soever they may have been studied by surgeons with reference to the operation of lithotomy.

Dieffenbach's Rules of Practice.—It is not till 1829, when Dieffenbach directed his attention to the matter, that, in Germany, we meet with any originality in the treatises on, or in the treatment of, rupture of the perinæum. This eminent surgeon, after a most deliberate and careful investigation, concluded that sutures alone could not be relied upon to cure perinæal laceration; and, among others, he laid down the following rules of practice:—1. That prior to the operation the bowels should be well cleared by purgatives and enemata. 2. That despite the swollen state of the torn parts, the presence of discharges, and the debility of the patient after delivery, the operation should be performed as immediately as possible after the accident, since those evils would be more than counterbalanced by others consequent on delay—as suppuration, sloughing and loss of substance, and by the yet later results—displacement of the uterus and associated organs. 3. That no rupture, however slight, should be left to nature: for the healing would be superficial, and the vulva enlarged, proportionably to the extent of laceration, by the retraction of the labia towards the anus, the support of the pelvic viscera being also thereby diminished. 4. That three to five sutures are necessary, according to the severity of the accident; the insertion of the sutures commencing at the anus, and, where the sphincter is torn, the first being applied at its angle. 5. That where the perinæum is lax, either the twisted or the interrupted suture may be used; and when the vagina is implicated, its fissure should be first

brought together; also that where the perinæum is tense and rigid, an elliptic incision should be made on either side the median line, and equidistant from it. 6. That in those cases where there has been a considerable loss of substance, the transplantation of an adjoining piece of integument may be resorted to—*i.e.*, a plastic operation may be attempted. 7. That in cases of old standing, the edges of the fissure require to be pared before being brought into apposition by sutures. 8. That after the operation, the bowels should be bound by the administration of opium, in doses of one third of a grain twice a day: and that the urine should be regularly withdrawn by the catheter.

Such are the maxims of Dieffenbach. Of these the most original is the making incisions where the tension of the perinæum is considerable: among them, too, is one which I have much insisted on, and which, moreover, is opposed to ordinary practice—viz., confining the bowels by opium after the completion of the operation. With respect to the incisions advised by Dieffenbach, they are spoken of as penetrating only the integument and superficial fascia on either side the wound, in order to obviate the pull upon the sutures by any movements. He therefore seems to have overlooked the divergent action of the sphincter ani, and did not attempt to remove it by a division of the fibres of that muscle. Moreover, it was only latterly that this eminent surgeon recognised and advocated recourse to operation immediately on the occurrence of the accident.

Chelius gives a brief exposition of the operative proceedings pursued in the treatment of ruptured perinæum, but offers nothing original. He, and also Zung, advocate the common practice of keeping up a looseness of the bowels during the process of healing. Professor Roser, in a recent paper in Schmidt's "Jahrbucher" for the year 1853, recommends hare-lip (twisted) sutures to bring together the edges, and the leaving them undisturbed for three or four weeks, notwithstanding any suppuration. Other writers in Germany, whose works I am personally unacquainted with, have written on rupture of the perinæum, among them Menzel, Osiander, Wutzer, and Langenbeck. The plan of the last-named surgeon it is the

object of M. Verhaeghe's (of Ostend) Memoir (*Mémoire sur un nouveau procédé opératoire pour la guérison des Ruptures complètes du Perinée*, par L. Verhaeghe. Bruxelles. 1852) to make known; but I shall defer describing the method at present. To that memoir I am indebted for the following notice of German opinions. The interrupted suture is that generally recommended as the chief, and the twisted suture as accessory to keep the integument and subjacent areolar tissue in accurate apposition by preventing inversion or eversion. M. Wutzer employs long curved needles, about 3½ inches in length, which he runs through the entire thickness of the lips of the wound. These needles, M. Verhaeghe tells us he has himself employed with great advantage. Wutzer and others postpone operating till the cessation of lactation; but Dieffenbach, Jungmann, and Langenbeck, advise immediate operation.

French Writers.—The French literature of the subject is more extensive than the German. Ambrose Paré, the father of modern surgery, pointed out the applicability of sutures to the accident. Mauriceau likewise wrote in its favour. But the first authentic instance we have of the suture being actually employed, is related by Guillemeau, a pupil of Ambrose Paré; he used the interrupted suture, and met with success. It did not, however, become a recognised mode of treatment until the time of Saucerotte and La Motte, at the close of the last century. Noël and Saucerotte used the twisted suture, and each succeeded in a single case.

Although admitted by the majority to be the most effective and certain means of securing union in perineal rupture, yet the suture has been condemned as useless, and even as mischievous, by not a few French surgeons and accoucheurs. Deuleurye (*Traité des Accouchements*) says, such solutions of continuity are to be healed without sutures;—Puzos agrees with him; likewise Outrepont and others. Boyer even condemns attempts to heal the laceration. Still more recently (1836), M. Duparcque (*Histoire complète des Ruptures et des Déchirures de l'Uterus, du Vagin, et du Perinée.* Paris. 1836), who has devoted an entire treatise to ruptures of the female generative organs and perinæum, concludes that sutures are unnecessary

and undesirable, and expresses his reliance on the old general rules of position, absolute quiet, &c.

On the other side, as advocates of operation by suture, we have Saucerotte, La Motte, the MM. Dubois, and that most successful and talented surgeon, M. Roux. This last-named gentleman succeeded in curing four out of the first five cases he attempted. He employed the quill-suture with an accessory twisted suture at one or two points. In one instance he kept the bowels confined for twenty-two days, but he does not point out such a proceeding as a rule of practice; not generally, indeed, resorting to it himself. He also practised Dieffenbach's incisions, but does not appear to have recognised the utility of dividing the sphincter ani to obviate retraction of the edges of the wound. Moreover, M. Roux thinks it best to defer operating till suckling is given up. In this opinion he is supported by Danyan. Madame Boivin (*Mémoire de l'Art des Accouchements*. Paris. 1836), is silent on the subject.

M. Velpeau (*L'Art des Accouchements*) has a chapter on rupture of the perinæum, and supplies a good review of its literature, but presents no original matter. He appears to recommend sutures, and, where tension is great, Dieffenbach's incisions.

In a patient with rupture of the perinæum, involving also the vagina, Saucerotte, upon repeating an operation, divided the sphincter ani. No reason, however, is assigned for so doing, nor is the direction of the incisions mentioned. In fact, he evidently did not recognise the proceeding as an essential part of the operation.

MM. Paul Dubois and Chailly-Honoré advocate an oblique incision, about the third of an inch long, of the vulva, towards the perinæum, either to altogether prevent the rupture of that region when much distended, or, when the laceration is inevitable, to favour it at a spot where it can produce the least mischief. The writers support their views by the history of successful cases. (*Lancet*, vol. i. 1860.) This plan is also proposed by Dr. Blundell. (See p. 7.)

At the date of publication of the previous edition of this book in 1854, the best account I had met with of ruptured

perinæum and its treatment was that written by M. Verhaeghe, surgeon of the Civil Hospital, Ostend, to make public the views of M. Langenbeck, of Berlin, and the particular operation this distinguished surgeon had devised. In many particulars the opinions and practice advocated coincided with my own, but it was curious to notice that, though my essay on Ruptured Perinæum had been for some time published, and was indeed referred to in the pages of his brochure by M. Verhaeghe, as known to him, yet many of those very coincident opinions were referred to as peculiar to himself and the mode of treatment he advocated.

The operation in question was named "perinæo-synthesis," and was divided into several stages—viz., 1. Vivisection of the free border or spur (*éperon*) of the recto-vaginal septum. 2. The splitting (*dédoublement*) of the septum, and the formation of a flap destined to form, in the new perinæum, the anterior side of the triangular space (formed by the two canals, vagina and rectum, with the perinæum as the base). 3. The vivisection of the two lips of the laceration. 4. The insertion of the sutures. 5. The two semi-lunar incisions advised by Dieffenbach.

After the edges are pared, tension of the septum is maintained by the two fingers in the rectum, and then a nearly semicircular incision is made on the anterior surface of the latter, and two or three lines from its inferior border. The upper lip of this incision is next seized by forceps and separated by careful dissection from the deep layer for the space of six lines in length, and over the entire breadth of the septum. Thus two laminæ are formed; one anterior or vaginal, the other, posterior or rectal; the latter destined to continue *in situ* to close the rectum, the former to be drawn forward and fixed by its angles at the anterior part of the new perinæum on each side. An inclined plane is in this way formed, directed from behind forwards, intended to act as a sort of valve to the new perinæum, as the epiglottis does to the glottis; that is to say, prevent the fluids of the vagina coming in contact with the newly united parts.

The vivisection of the two sides of the laceration is the next step. To do this a quadrilateral space, about an inch and a half

were now healed. She quitted the hospital cured at the end of the month.

Case II. A woman, æt. 24, suffered from complete rupture of the perinæum caused by the application of the forceps in her first confinement five months before; the sphincter ani was entirely divided; the inferior border of the recto-vaginal septum, forming a sort of spur (*éperon*), was the only separation between the vagina and rectum. Even when the fæces were hard they could be retained only a short while. The operation was performed on the 21st December. Besides the suture to close the rectal fissure, four other deep interrupted sutures were introduced. Three other sutures made fast the flap of the septum on each side: and one twisted suture was placed between the first and second of the interrupted. The incisions of Dieffenbach terminated the operation, which had lasted three-quarters of an hour, the patient during that time having been kept insensible by chloroform. A half-grain of opium was given at once, and twice repeated before night. The catheter was introduced twice daily, and frequent vaginal injections made. The most restricted diet was ordered—only barley-water and lemonade. 24th: Union seemed perfect. 27th: The remaining threads removed. On the 30th, the first desire to evacuate the bowels occurred—*i.e.* ten days after the operation. Two injections were given, and much hardened fæcal matter discharged. Notwithstanding every care the wound opened about half an inch, posteriorly; fortunately, the anterior half held good. Jan. 1st: After a laxative by the mouth, a loose evacuation followed, which the patient was enabled to retain some time. Granulation in the re-opened portion proceeded slowly; to stimulate it nitrate of silver was frequently applied. This closure by granulation, however, and the consequent contraction of tissue, had the effect of shortening the perinæum. On the 27th she quitted the hospital quite cured.

Case III. A woman, æt. 22, suffered complete laceration of the perinæum in her second labour, six months ago. The injury resulted from the efforts of the midwife to disengage the shoulders by introducing her hand into the vagina. The delivery was followed by puerperal fever, and by an abundant suppuration along the edges of the laceration. The recto-vaginal septum is laid open for about three lines; the incontinence of fæcal matters complete. The bodily health good.

After the preliminary baths, injections, and aperients, the operation was performed on the 17th March. The parts were highly vascular, and bled largely, so retarding the operation, and requiring torsion of the small vessels. Four sutures were placed; one to close the rectum, and the other three to form the new perinæum. The flap taken from the septum had been previously fixed by two sutures on each side. The Dieffenbach incisions bled in an unusual manner.

Cold-water dressing was used, and cold injections of infusion of camomile every three hours. The knees were kept together by a bandage. The oozing of blood, chiefly from the lateral incisions, did not cease till near evening. She progressed favourably. On the 24th menstruation occurred, and lasted till the 27th. 26th: Catheterism omitted from this day; but patient made to pass the urine as she rested on her hands and knees, and the parts carefully washed afterwards. The opium was discontinued. It was not till the 28th that a copious evacuation was obtained; three enemata on the previous day having almost failed to act. After this an enema was ordered every morning, and vaginal injections twice a day.

30th: The small sutures confining the flap of the septum were not removed till to-day. A first attempt has been made to walk. The new perinæum is a good inch long, and very firm.

In concluding, M. Verhaeghe calls attention to the great importance of minute attention to the details of the after-treatment, upon which, he truly observes, the success of the operation will depend.

Thus far I gave, in my last edition, an outline of the French authors on Perinæal Laceration; to make it more complete I have sought among the subsequent productions of the French press for other notices of the subject, and with the following results.

Bernard and Huette, who wrote in 1855, recommend Roux's quilled sutures, and, if needed, Dieffenbach's cutaneous incisions. They also advocate the non-removal of the sutures until complete cicatrization has taken place, and they treat union by the first intention as an event not to be counted upon. Guérin and Sédillot, who both allude to the subject in their surgical treatises, published in 1855, content themselves by recording the propositions and practice of Roux, Dieffenbach, Vidal-de-Cassis, Montaigne and Langenbeck. Dugué (*Des Dechirures de Perinée, &c.* Paris. 1856. Thèse) has the following remarks:—"When the sphincter and recto-vaginal septum are involved, the edges are to be pared, the sphincter divided, and three quill sutures employed." The success of the operation (he adds) will depend entirely upon the attention bestowed on the after-treatment of the case; and he then does me the honour to remark, "that the mode of conducting this has been laid down with much precision by Mr. Brown." The deep sutures M. Dugué proposes to leave for four or five days, and the superficial for about a week; and the bowels he rightly directs to be kept confined for ten or twelve days.

Gross (in 1859) recommends operation immediately after the accident, and in old cases directs that where the rent extends into the recto-vaginal septum, its edges must be pared, and then carefully fastened together by two stitches. This done, the perinæal fissure is next to be closed by three sutures, and the sphincter divided, if there be much tension; but this last proceeding is seldom required. The bowels are not to be allowed to be moved for ten or twelve days, and the sutures

not to be disturbed for a fortnight. To illustrate the operation he repeats the diagram given in my book.

M. Nélaton, in his recent surgical treatise (1859) distinguishes three varieties of ruptured perinæum, as complete, incomplete, and central. The last form, he says, heals by position alone; and of the others also, his opinion seems to be that they may be left to the natural healing powers, care only being taken to keep the torn edges in contact by attending to the position of the patient. However, he describes the operative proceedings of Roux, Dieffenbach, Langenbeck, and Cloquet, as at times possibly desirable.

English Writers.—Among English surgeons and accoucheurs rupture of the perinæum has engaged but little attention. We have no English treatise on the subject; and it is, moreover, strange to observe how often a lesion, so important in itself and in its consequences, and not so uncommon in its occurrence, has been almost or altogether passed by unnoticed in works on midwifery and surgery, and even in those of standard reputation. For example, I find no mention of it in S. Cooper's elaborate *Surgical Dictionary,* none in Pirrie's *Treatise on Surgery;* no article upon it in Dr. F. Churchill's *Operative Midwifery,* nor in Burns (*Principles of Midwifery*). Again, where not altogether omitted, it has been very superficially considered; so much so, that no sufficient instruction is conveyed to the practitioner having the treatment of a case, and with no experienced surgeon at hand to advise with.

In my search after recorded cases of ruptured perinæum, and for opinions respecting its treatment, I have met with several notices scattered in books and journals, to which I will briefly advert.

Smellie, in his book on midwifery (*A Treatise on the Theory and Practice of Midwifery*) relates several cases of laceration; but all the severe ones were either left to nature or treated unsuccessfully. Dr. Aitken (*Principles of Midwifery,* 1785) is a determined opponent to operation, especially by suture, and would trust to the expedients practised of old, such as tying the legs together, attention to cleanliness, perfect rest, the withdrawal of the urine, the use of enemata, &c. Dr.

Blundell (*Lectures on Midwifery*) says: "With the greatest care and nicest management, these cases are seldom remedied by operation." He mentions cases of old and partial laceration operated on successfully by Mr. Rowley, which, he says, "did great credit to his surgery." Denman (*Practice of Midwifery*) presents a good description of rupture of the perinæum, its causes and prevention, but points out no plan for its cure. Dr. David Davis (*Principles and Practice of Midwifery*), in his chapter on ruptured perinæum, appears averse to operative proceedings, because "they much more frequently fail, ... leaving the intermediate gap in a worse state than before;" and remarks "that it is a damage seldom benefited by any of the modes of treatment hitherto resorted to for that purpose."

Mr. South, in his translation of Chelius (*System of Surgery*), appends to the tolerably good account of the subject by the German author, some valuable notes, and quotes a successful operation by Mr. Davidson, reported in the *Lancet* (Vol. II., 1838-39, p. 225), in which the quill suture was employed, and constipation kept up for seventeen days. Mr. South, however, favours the common plan of keeping the bowels loose after the operation.

Dr. Ramsbotham (*Principles of Midwifery*) speaks of laceration of the perinæum as an accident of labour, but mentions no remedy for it. Miller (*Principles of Surgery*) devotes only ten lines to the subject, and advises any operation being delayed for some time after parturition.

Dr. Cockle (*On Laceration of the Perinæum during Labour*, 1853), advises a chance being given of natural union by the first intention; and remarks that, "as a general rule, sutures are to be considered as inadmissible, at all events in the early stage."

Thus, on the whole, the prevalent opinion in England appears to have been that, from the uncertain, and most frequently unsuccessful results of the operations devised, and from the apparently insuperable difficulties to be contended with, it was better merely to aid the efforts of nature in narrowing the wound, and in lessening the evils attendant on it.

This last paragraph was penned with particular reference to the opinions of British surgeons at the date of the last edition of this treatise. It does not apply now with so much force as then, since many surgeons in this country have approved and carried out the operation for ruptured perinæum; but there are still eminent men who at least hesitate to adopt it, save as an exceptional expedient. Thus Mr. Skey (*Operative Surgery*, 1858) writes to the effect, that operative surgery has too often failed in the attempt to restore the integrity of the divided structures, to justify a hope of success, except under circumstances of peculiar care on the part of the operator, and the most favourable conditions of health as regards the patient, and that it is not desirable to perform an operation during lactation. However, he proceeds to describe the operation pretty much after my plan. Respecting the lateral incisions, he agrees with me that they are of no advantage; but on the after-treatment we differ considerably, for he says that it is necessary to keep up constipation for only a day or a day and a half; and adds that, "of the two conditions, a state of relaxed bowels throughout the treatment is preferable to constipation, for nothing can withstand a violent expulsive effort of the abdominal muscles and rectum conjointly; but the latter condition is far more favourable to union."

Mr. Erichson (*Science of Surgery*, 1860) recommends the same proceeding as I do for lacerations not extending through the sphincter—viz., to pare the edges, and to keep them in apposition by two quilled sutures.

CASES ON RECORD.

Of the instances of operation narrated in the medical journals, I will refer first to that described by Mr. Joseph Rogers (*Lancet*, Vol. I., 1849, p. 555). The laceration did not in his case involve the sphincter, but extended round the extremity of the rectum quite to the posterior part. The edges of the wound had nearly cicatrized throughout. In his first attempt, Mr. Rogers used two stitches (interrupted sutures); but these having ulcerated through, the operation was repeated, and the edges

placed in perfect apposition by hare-lip pins, secured by the twisted suture. After the operation, the patient was interdicted nearly all food for six days, and had her bowels kept bound by opiates. At the end of seventeen days complete union had taken place; the period, however, having been prolonged by obstinacy on the part of the patient.

On this case Dr. Robert Barnes has offered some remarks (*Lancet*, Vol. II., 1849). He writes, "I believe that no amount of skill and precaution will justify the surgeon, in the majority of cases, in looking for perfect union by means of any of the sutures in common use." He then proceeds to recommend the *bead-suture* devised by Mr. Charles Brooke, as obviating all the objections raised against operation by suture. He supports his recommendation by reference to a case operated on by Mr. Brooke, under very unfavourable circumstances, yet with complete success.

Mr. Higginbottom, of Nottingham, briefly relates (*Lancet*, Vol. II., 1849, p. 661) a case of laceration of the perinæum, extending through the sphincter ani, which was "directly united by the interrupted suture in two places, and the nitrate of silver applied to the skin on each side, close to the line of the wound, and left without any other dressing." At the end of the second day the bowels were opened by castor-oil, and on the third day the sutures were removed. "The wound united by the first intention; the eschar surrounding the laceration made by the caustic had the power of fixing the parts as if adhesive plaster had been applied." This treatment was carried out thirteen years prior to the published account; and during that lapse of time the patient had suffered no inconvenience, and had borne nine children without any recurrence of the laceration.

In the same volume of the *Lancet* (p. 672) is the report of a case treated by Mr. Holt at the Westminster Hospital. The rupture was of two months' standing, deep and ragged, "extending from the lower portion of the vagina to the upper part of the anus." The edges having been pared, their contact was secured by "three double sutures passed through the whole thickness, at about half an inch from the edge. A piece of

small gum-elastic bougie was then placed on either side; one piece through the loop formed by the double thread, and the ends of the ligature tied over the other." Eight days after, the sutures were removed, and the bowels, hitherto confined, relieved by castor oil. In about four weeks union was complete.

In the *Lancet* (Vol. II., 1850, p. 93), two cases occurring at King's College Hospital, under the care of Mr. Fergusson, are briefly recorded. In some preliminary remarks, it is said (apparently on the authority of Mr. Fergusson), that "it is better to wait before any surgical means be attempted, until the primary inflammation has subsided." In both cases, the interrupted suture was employed; the distinguished operator stating his opinion to be that the objections to it are removable by precautionary measures, of which the most important, as illustrated in the cases cited, are the parallel incisions in the long diameter of the perinæum, as proposed by Dieffenbach.

In the first case, the bowels were kept regularly open by enemata; but in the second, they were kept confined six days after the completion of the operation. The perinæal wound was entirely and accurately closed within twenty-seven days after the insertion of the sutures, but a very small communication existed between the vagina and rectum, so unimportant, however, that Mr. Fergusson declined resorting even to cauterization.

Both Mr. Arnott, of the Middlesex, and Mr. Lane, of St. Mary's Hospital, have operated successfully for laceration of the perinæum, but have published no detail of their cases; and without doubt many successful operations remain unrecorded, or are at least unknown to me.

Dr. Lever and Mr. Hilton's Operation.—The volume of the *Guy's Hospital Reports* for 1853 (Vol. VIII., Part ii., p. 401) contained a brochure by Dr. Lever on Laceration of the Perinæum, describing two cases wherein the coccygeal attachments of the external sphincter and levatores ani were divided by a subcutaneous incision.

In the first case, "the laceration extended through the perinæum, so that the fæces passed involuntarily." The operation took place on the 26th August: on the 1st September, the patient is reported to have then had "command of the rectum;

but she felt a bearing-down pain after standing or sitting;" and on the 7th "there was a continuous surface of mucous membrane from the sphincter to the vagina." "This patient, when last seen, two and a half years after the operation, had lost the pain and bearing down, and had full command of the bowels, except occasionally, when the fæces were very fluid."

The second case, of nine years' standing, was complicated with procidentia uteri and leucorrhœa, whilst a considerable portion of the rectum protruded through the anal opening, the mucous membrane being intensely injected with blood, and very tender.

"She complained of constant burning pain in the rectum, with inability to retain the fæces if the stools were fluid. . . . . This woman was seen more than three years after she left the hospital, and stated that there was no descent either of the uterus or rectum, but she was compelled to be attentive to the state of her bowels."

Mr. Hilton operated in each instance, and thus details his reasons:—"Remembering that the levatores ani have one firm and fixed attachment to bone near the arch of the pubes, and another at the coccyx, and that the external sphincter ani might be regarded anatomically nearly in the same light in relation to its effects upon the injury to the perinæum, and bearing in mind that all muscles contract towards their more fixed point, it occurred to me,—that by disengaging the coccygeal attachments of the levatores ani, I might allow them to retract the anal aperture and adjacent structures in a direction towards the pubes, as it were, to bury the perinæal injury deeply in the pelvis, thus enabling the lower fibres of those muscles to assume the office of a sphincter to the lacerated opening, by approximating the edges of it, and drawing it upwards towards the pubic arch." Also, "that by separating the coccygeal fixed point of the sphincter ani, I should necessarily change the direction of its contractile power from the coccyx towards the vagina, and thence to the pubes; this I hoped would help to occlude the lacerated opening between the vagina and rectum. Whether I had reasoned rightly or not, the results were as satisfactory, and indeed more so, than I had anticipated. It seemed to myself, that two ulterior purposes might be held in

view by such an operation; the first was to ascertain how much of complete relief could be afforded by an operation which promised to be altogether free from both danger and the severity of the ordinary operation for such cases; and secondly, should no important immediate benefit be derived, it would certainly tend to the advantage of the patient, by putting the parts into a better state (by relaxing them) for the easy and perfect accomplishment of the usual but more formidable operation of paring the edges of the lacerated wound, and maintaining them in contact for a time by sutures."

From the last clause especially, but also from the general line of argument, Mr. Hilton seems to have apprehended the importance of annihilating traction of the fissure by severance of the muscles; yet I cannot commend the utility of the operative measures his anatomical reasonings suggested. At the best those measures answered very indifferently:—the fissure remained (not so widely gaping, it may be) a source of annoyance and discomfort; and the control over the dejections continued imperfect and a necessary cause of misery. The operation may indeed appear less "formidable" than that of paring and stitching the edges together, but the end gained is trifling, and not to be weighed against complete cure, which the plan I pursue promises almost certainly. I cannot believe Mr. Hilton will have many imitators, nor that he and Dr. Lever were themselves much in love with the operation, as it has never since been repeated.

It now remains for me to state my views, and to detail those operative proceedings which reflection on the deficiencies of other plans led me to adopt, and which an ample experience hereafter detailed has convinced me to be the best.

Some few words are due to the consideration of the cases of a less formidable character than those of the complete rupture, which constitute the three first forms I have enumerated (p. 2).

The first variety, in which the rent extends to only an inch or less, requires, as already stated, no special treatment, at least of an operative description. Such a laceration needs only quiet and an attention to cleanliness to heal it.

The second form is rare, and demands special treatment.

Mostly, in order to secure the closure of the perforation, it is necessary to divide the anterior band at the fourchette, and then to bring together the edges by quill and interrupted sutures. It almost seems unnecessary to point out that, where the accident has existed some time, and the edges have become covered by mucous membrane, or otherwise cicatrized, these must be pared before being sutured. An instance of this unusual form of laceration has occurred to me, and is detailed as Case LXXXI.

The third variety, in which the perinæum is lacerated, but the sphincter remains entire, is a proper object for treatment. Although the functions of the rectum are not disturbed, yet a rupture of this sort, left to itself, entails many evils; for, besides those immediately attendant on the enlarged vulva, there are others due to the want of support to the pelvic viscera; hence, prolapsus uteri, displacement of the bladder (cystocele), or of the rectum (rectocele), and symptomatic disorders consequent on such dragging down. Wherefore, every instance of this degree of laceration requires operative treatment. For when left to nature, even if closure of the fissure occurs, adhesion is apt to be superficial; and the contraction ensuing upon the process of granulation and partial closure is such as to draw backwards the parts towards the anus, enlarging the vulva, and so to predispose to displacements of the pelvic viscera.

In examples of this form of ruptured perinæum, the treatment is pretty much the same as for the next and severest form, and most of the steps of the operation to be presently detailed elong to this degree of the accident, and, to avoid repetition, will not be here described.

In the first two cases of this description I operated upon, which were recorded in my second essay, read before the Medical Society of London, on Rupture of the Perinæum, I divided the sphincter ani. This proceeding, however, is seldom necessary. The sutures are all placed in front of the anus, and both quill and interrupted sutures are desirable; the former in order to secure accurate apposition of the edges and deep union.

Besides the instances of rupture of the perinæum not extending through the sphincter ani recorded in this chapter, there are others appended to the account of vaginal cystocele and

Instruments required.—The instruments required are,—a common straight scalpel; a blunt-pointed straight bistoury, to divide the sphincter; a pair of long dissecting forceps; three large needles for deep sutures; small ones for the superficial interrupted sutures; a tenaculum; pieces of gum-elastic catheter or bougie (as suggested at my first operation by my friend Mr. Lane), with twine well waxed; silver or iron wire; sponges, &c.

The needles used for deep sutures are fixed in handles, and more or less curved to adapt them to different cases; the width of perinæum and the thickness of the tissues varying considerably in different persons. (See Figs. 1 and 2.)

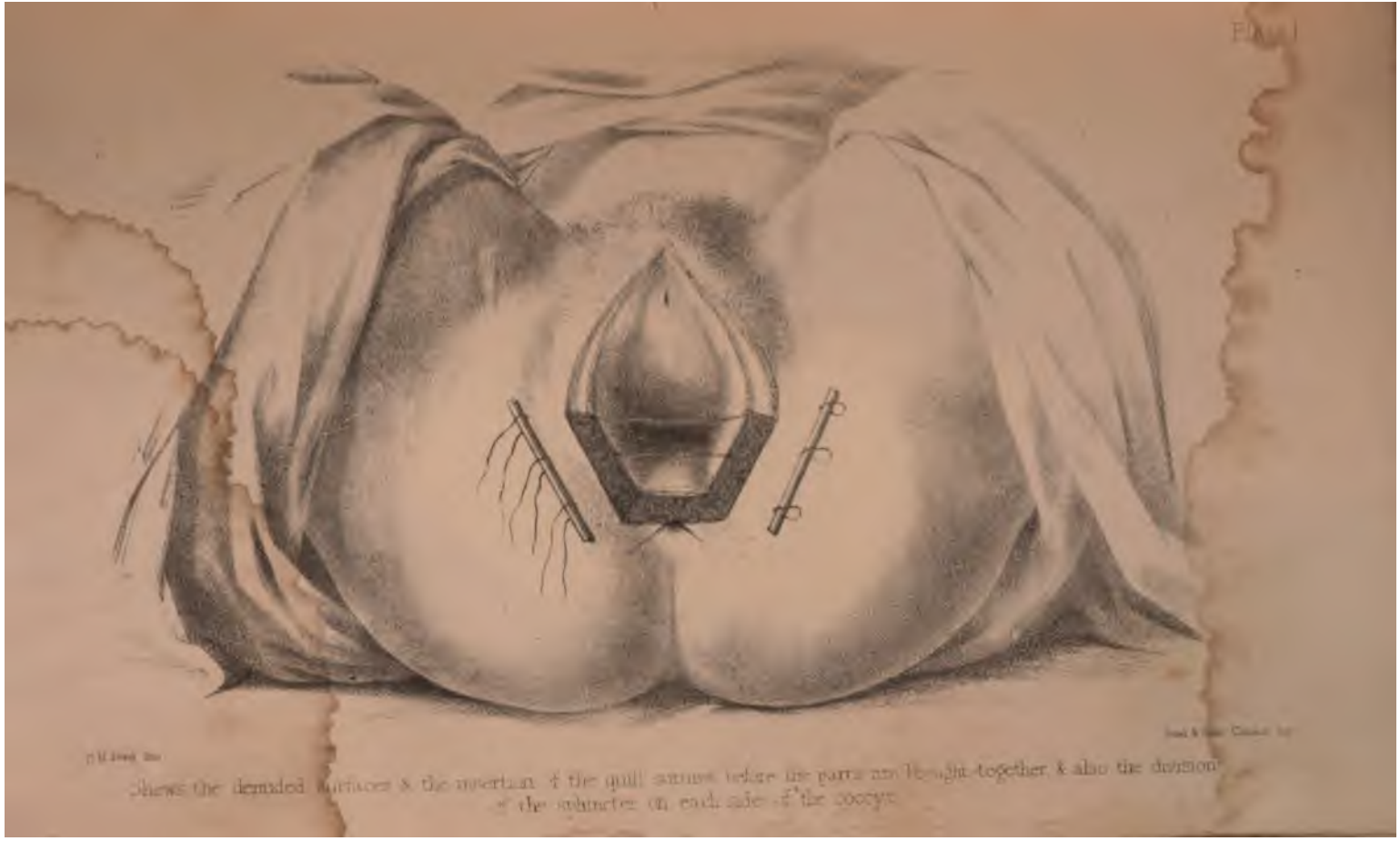
The operator will require at least two assistants. Unless contra-indicated, or opposed by the patient or her friends, it is desirable to place the patient under the influence of chloroform; for not only will she be thereby saved pain, but opposition and straining are avoided, and a favourable relaxation of the parts obtained.

MODE OF OPERATING.

The patient should be placed in the position for lithotomy, the knees well bent back upon the abdomen, and all hair be closely shaved off about the parts. The sides of the fissure being held by an assistant so as to insure sufficient tension for the operator, a clean incision is made about half an inch external to the edges of the fissure, and equal to it in length, and sufficiently deep to reflect inwards the mucous membrane, and to completely bare the surface as far as another incision carried along the inner margin. (See Plate 1.) The denudation of the opposite side of the fissure is then to be practised in a similar manner, and the mucous membrane from any intermediate portion of the recto-vaginal septum to be also pared away.

This denudation must be perfect, for the slightest remnant of mucous membrane will most certainly establish a fistulous opening when the rest of the surfaces has united.

Some operators, especially the continental, remove the mucous membrane by scissors; but this is a clumsy and unsafe



Shews the denuded surfaces & the insertion of the quill sutures before the parts are brought together & also the division of the sphincter on each side of the coccyx

method, and the knife will be found to effect the purpose quicker and better.

Division of the Sphincter.—So soon as this stage of the operation is completed, the sphincter ani is divided on both sides, about a quarter of an inch in front of its attachment to the os coccygis, by an incision carried outwards and backwards. The incision should be made by a blunt-pointed straight bistoury, which, having been introduced within the margin of the anus, guided by the forefinger of the left hand, is quickly and firmly carried through the skin and subcutaneous areolar tissue to the extent of an inch, or even two, external to the anal orifice, through some of the fibres of the muscle which immediately surround the anal aperture, but leaving those more deeply seated within it untouched.

Insertion of the Quill Sutures.—The sphincter having been divided, the thighs in the next place are to be approximated, and the quill sutures introduced. The left denuded surface and the tissues external to it being firmly grasped between the forefinger and thumb of the left hand, a strong needle carrying a double thread is plunged, with the right hand, through the skin and subjacent tissue an inch external to the pared surface, and thrust downwards and inwards beneath it until its point reappears on the edge of that surface; it is then introduced at the corresponding margin of the denuded space of the opposite side, and made to traverse beneath it in a direction upwards and outwards until it escapes at a point equidistant from the external margin with that at which it entered on the left side. Each suture is to be introduced in the same way, the one nearest the rectum first: two often suffice, but three are at times required.

The sutures are double, to allow them to enclose the quills, or (as actually used) the pieces of elastic catheter or bougie, around which they loop on one side, and are tied over by their free ends on the other. For the quill sutures I prefer stout twine, well waxed, to silk, as I believe it to be less irritating, and productive of less suppuration.

Insertion of Interrupted Sutures.—The quill sutures being firmly secured, the sides of the fissure become approximated,—

position, this is best done by introducing the catheter between the thighs from behind; and in withdrawing the instrument, the thumb should be kept on its end, in order to prevent any urine remaining in it from escaping into the vagina, whereby it might cause such irritation about the wound as might defeat our attempts to close it.

After some days, as on the eighth or ninth day, if the healing go on satisfactorily, and the strength of the patient be equal to it, she may be allowed to pass water, resting on the hands and knees, so as to prevent, as far as possible, its contact with the lower or sutured surface of the vagina.

The deep sutures should be removed on the second, or at latest, on the third day; in about fifty-four hours is the best time. I have found their retention after the periods named of no service, but rather mischievous by their tendency to suppurate and slough, results of more rapid occurrence in hospitals than elsewhere. On the sixth or seventh day the interrupted sutures may be taken away. In withdrawing the quill sutures care must be taken not to separate the thighs, for it is necessary to keep up their apposition for some time. The time above stated for the removal of sutures does not correspond with my practice in the earlier cases I published: increased experience has led to the alteration.

If there be, after the operation, any considerable bleeding, not controlled by the simple water-dressing, pieces of ice may be introduced, or ice-water injected into the vagina: other measures, as ligature or torsion, are scarcely ever required. For the first week the parts are left undisturbed, except being carefully sponged with warm water for the sake of cleanliness. After this time vaginal injections of tepid water are serviceable.

Should there be an offensive discharge, chloride of soda may be added. The opium should be persevered with, so as to keep the bowels constipated for two to three weeks after the parts have united; then when union has become firm and complete, the bowels may be relieved by injections of warm water with castor oil, and by the latter given by the mouth. Attention should be paid during the passage of the first evacuation, and support given to the restored perinæum; but all hardened

masses should be carefully broken down by the injections before being allowed to pass.

The precise time for opening the bowels must be regulated by the strength of adhesion set up, and by the amount of reparation of lost tissue which has been attempted.

For some few days after the first evacuation, an enema had better be continued.

Should adhesion, unfortunately, from any accident, not be complete throughout, and a fistulous opening persist, the application of a caustic or stimulating substance may be tried; the most effectual is the acetum lyttæ applied by a camel-hair pencil.

CRITICISMS AND SUGGESTIONS.

The history already given has sufficiently detailed the propositions and plans of treatment suggested by others; but it remains for me to respond to the criticisms or objections which have from time to time been raised against my mode of operation and treatment. This I shall do very briefly, as the best response is furnished by the greater success of the cases so treated, than of those operated upon by any other plan yet brought forward. Hypothetical, *à priori* objections are indeed not worth discussing; for it is experience alone that can prove the fitness or unfitness, the safety or danger of any operation. It is absurd to descant on the necessary danger of a measure, when experience, sufficiently ample, proves that if such peril be not altogether imaginary, it is so small as to be undeserving of notice when taken into account with the benefit to be gained by incurring it. Give importance to such objections, and what operation would be attempted?

On Immediate Operation.—It has been said that in operating immediately after the accident, immense danger must attend the suturing of the parts; that inflammation may be set up in the vagina, and may thence extend to the uterus and neighbouring parts, which, after delivery, require to be carefully preserved from any such morbid action. But, omitting for the present, reference to the teachings of experience, we may observe, that the vagina is a mucous canal, not very delicate,

and not prone, like a serous tissue, to so rapid propagation of a morbid process; for within it severe inflammation may be very limited in its extent. Moreover, by immediate operation, the otherwise necessary denudation of surface is avoided; only the sutures have to be introduced, and the sphincter divided; the torn edges are thus brought into contact, that is, into a condition favourable to healthy union, and one assuredly not more likely to be followed by untoward inflammatory action than would the ragged edges of the laceration if left to itself; for the accurate apposition of surfaces by the quill sutures guards against the noxious irritation from secretions. In other words, supposing the case left, will not the chances of extended inflammation be even greater? Will not the inflammation, unavoidable, indeed necessary to the healing of the lacerated surfaces, be greater, and its duration longer, seeing that the torn parts are exposed to every source of irritation? The reply must surely be in the affirmative.

The noxious influence of the lochia on the wound, chiefly in preventing or retarding the healing process, has been urged as an argument for delaying the operation. The danger therefrom is, however, as just intimated, obviated by the close and accurate apposition of the surfaces obtained by the sutures and by the annihilation of the action of the sphincter fibres in drawing them asunder. The ill effects of this discharge are further provided against by the constant attention to cleanliness, and by the use of tepid injections.

Another reason for deferring a surgical operation until some time after delivery is founded on the fact of the successful issue of some cases which have been left to themselves. For my part, I cannot admit this as a sufficient argument for delay. The maxim that "delay is dangerous," holds good in all its force regarding ruptured perinæum. The chances are greatly against spontaneous cure, even in milder cases; in severe, it is vain to hope for it. Surgical operations would be few indeed, if extraordinary instances of natural cure were allowed generally to contra-indicate resort to them. On the other hand, the operation for ruptured perinæum, and more particularly in recent cases, is not of that formidable character to alarm the patient,

or to peril her life; whereas, by it a complete restoration may confidently be anticipated,—a result hardly ever to be reckoned on when the injury is left to repair itself, though all the advantages obtainable from general attention to quiet, position, and such like expedients, be secured.

That this *laissez faire* doctrine has so extensively prevailed, is readily accounted for, when we consider how very frequently unfavourable have been the results of operative proceedings heretofore devised and put into practice. Too often has the operator not only failed in procuring union of the fissure, but has also rendered the mischief worse by his interference. This sore discouragement will, I believe, be removed, and with it the prejudice against immediate operation, if the principles of treatment laid down in these pages be followed out; nor at this time is the sanction of experience to be found almost in my practice alone, for the operation has been widely adopted even for recent cases by many surgeons, and among others by Mr. Obré, who has resorted to it successfully in nine such instances.

Lastly, it is to be remembered that resort to operative means may in slighter cases secure an adhesion of the laceration in three days; and, at all events, will always effect a cure in a much briefer period than can the natural unaided process. The only exceptional conditions against immediate operation, of at all a general character, arise when the mother is unable to suckle her child, or where the child is dead. Those of a special nature, such as fever and organic disease, need not be particularized.

Supposed Rigidity of Restored Perinæum.—Another general objection to the operation—indeed, to any similar operation—is that the restored perinæum must be, from its nature as a cicatrized tissue, so unyielding as to almost necessarily rupture from the stretching of a future labour. This is another of those vain hypotheses which vanish when examined and tested by experience. The closed fissure certainly presents a cicatrix, but the natural yielding tissues persist on each side, and admit of the needed extension, and at this date ample experience testifies to the fallacy of the supposition.

Thus, fifteen of the patients operated on by me have been subsequently confined with children, three of them on two occasions. Yet in only four of them did the perinæum receive any injury, and in these the laceration was in no wise a consequence of the cicatrization of the restored parts. Thus, in Case I. there was a tear during delivery, but not even along the line of the united parts, but obliquely outwards from the fourchette. Again, the lady whose case is numbered VII. and VIII. was twice delivered without any injury to the restored parts, and it was not until the third labour that the laceration was reproduced, and then only as a consequence of untoward circumstances, quite unconnected with the dilatability of the perinæum. Moreover, as reported, this patient has had the parts again restored by operation. In the third instance of subsequent laceration, numbered XLVII., and previously described as a case of success (Case XXIV.), the patient was stout, had a narrow pelvis, and produced large children, circumstances which induced me, after my first operation upon her, to recommend her not to go her full time in any subsequent pregnancy, but to have premature labour induced. This advice, however, she did not follow, and the consequent injury must be looked on as a well-nigh inevitable event, and certainly in no way chargeable to the condition and character of the restored perinæum.

Lastly, in the fourth instance (Case LVII.), we have ample explanation of the accident in the remarkable contraction of the pelvic outlet, through which, as I have observed in my notes on the case, no child of the average size could pass without lacerating the perinæum.

In no one of these cases can I admit the restored perinæum to have in the least been necessarily injured by subsequent delivery. The damage befel it under circumstances such as might at any time be productive of laceration of a perinæum never injured. But whilst making this assertion, it must be advised as a measure of common prudence, to give particular attention during labour to a perinæum which has previously suffered and been restored.

Suggestions, &c.—The cutaneous elliptic incision on each side the sutured part, proposed by Dieffenbach, and practised by Mr.

Fergusson and by most continental surgeons, is of no service when division of the sphincter is resorted to. Again, I cannot appreciate the supposed utility of the central flap (*dédoublement*) from the recto-vaginal septum, adopted by M. Verhaeghe; perfect closure is attainable without, and the reflected portion can have little vitality, and is very apt to perish.

On Incision of Sphincter.—A subcutaneous incision of the sphincter has been suggested, but it will not furnish the results aimed at. The muscular fibres of the sphincter immediately around the anus must be completely severed, and also the investing integument, to annihilate all traction. The utility of dividing the skin and subcutaneous tissue is undoubted, and particularly recognised in the incisions of Dieffenbach.

On Sutures.—The Bead Suture.—The bead suture, invented by Mr. Brooke, has been suggested as preferable to the quill suture, and as sufficient of itself to keep up the required apposition of the edges of the wound, and to render division of the sphincter unnecessary. In its mechanical operation as a suture it may be very excellent, but I have had no experience of it; for having been very successful with the quill suture, I have tried no other. That, however, it would render section of the sphincter unnecessary, I cannot admit, until repeated trials have proved it; for, according to my views, the division of that muscle is the peculiarly important and essential feature of the operation to restore the perinæum.

As the history given shows, each kind of suture has had its own advocates, and each has frequently failed. Dieffenbach thought the quill suture did not approximate and keep so closely together the edges of the wound as did the interrupted suture. I can account for this notion only by supposing he gave the quill suture but little trial, or that he failed to take up sufficient tissue with it.

MM. Langenbeck and Verhaeghe employed the twisted as the supplementary suture; but I think the interrupted, as used by myself, more simple and effectual in bringing about union of the integument.

The spring clasps invented in France, to keep the edges of a wound in contact, have not sufficient power and stability to be

of any use in so serious an accident as a severe perinæal rupture.

On Diet.—The after-treatment proposed has had various arguments brought against it. The dietary has been thought ill adapted to the circumstances of the patient, after a severe operation, and the customary low diet of gruel, toast-water, and such like, been preferred. This low or fever diet has, in my opinion, been far too much persevered with in disease generally. In women after delivery, I believe its adoption is a mistake in most instances; and in the majority of women with ruptured perinæum, there are more or less exhaustion and weakness, demanding support. Moreover, I believe a more generous diet, with wine, is favourable to the healing process, and a safeguard against erysipelas. This opinion is a reiteration of what was advanced by me in my paper read before the Medical Society of London in 1851, and subsequently published; and it is with peculiar pride and satisfaction that I am now able to support it by the able advocacy of Mr. Skey, who thus writes in his published Lectures (*On the Prevalent Treatment of Disease.* By Frederic Skey, F.R.S., &c. London. 1853): "Why do we invariably subject patients after a long and severe operation to abstinent diet? Why do we anticipate inflammation? and, still more, why do we encourage it? We anticipate inflammation, because our experience teaches us that it is ready at hand, that our patient is now predisposed to it; but do we not refer it to the wrong cause? We attribute it to the irritation caused by the knife, and not to the *debility* and to the shock produced on the system by the operation, with attendant loss of blood. I believe that such persons should always be supported by moderate stimuli, from the hour of the operation until their inclination for food is re-established. By such treatment, generally, if not uniformly adopted, many lives, particularly after operations of severity, would, I believe, be rescued from the grave; that, and—'odium chirurgicum,' or rather 'odium medicum'—the lancet and scarificator, with all their concomitants of purgatives, laxatives, and diaphoretics, which tend to rob the body of its richest juices, constituting the essence of its life itself, may be largely restricted in their application."

On Opium.—Constipating the bowels by means of opium has been thought reprehensible. The practice has almost universally been to keep up a looseness of the bowels, and to use repeated injections, from the date of the operation. This plan is still recommended by Mr. Skey, but I am sure he only needs opportunities of trying the opposite one to convince him it is a mistake. On the other hand, my practice of obtaining union of the parts in the first place, and of then opening the bowels, has the support of Dieffenbach, and more recently of Langenbeck and Verhaeghe and others. The presumed ill effects from the prolonged constipation and use of the opiate I have never seen; on the contrary, I maintain that the opium proves actually beneficial by allaying irritation, by controlling inflammation, and by generally favouring the healing process.

When I published my first paper on Ruptured Perinæum, my friend and colleague at St. Mary's Hospital, Dr. Handfield Jones, kindly furnished me with some interesting and valuable observations on the use of opium, from which I extract the following as applicable in this place:—

"Dr. Pereira notices the efficacy of small doses of opium (ten drops of laudanum three times a day), in such instances as the chronic or callous ulcer, the so-called varicose ulcer, in recent ulcers from wounds in which granulation proceeds slowly, and especially in elderly persons, and in those whose constitutions have been debilitated by disease, labour, spirituous liquors, &c. 'It appears,' he says, 'to promote the most genial warmth, to give energy to the extreme arteries, and thereby maintain an equal balance of the circulation through every part of the body, and to animate the dormant energies of healthy action.'

"In the cases recorded in this paper, opium was given, not chiefly for the purpose of directly promoting the healing process, but of preventing its disturbance by mechanical and forcible disruption of the coalescing parts. For this it was freely given; and this most important end it well accomplished. But had not this end been all-important, I own I should have feared before trial, that the quantity of opium administered—three or four grains sometimes in a day—would have had the effect of disturbing, by its influence on the organic functions, that

reparative healing process which issued in so beneficial and happy a result. For in these cases there does not appear to have been any marked asthenia, or undue irritability of the system. The terrors of surgical operations of earlier days, when the anæsthetic spell was unrevealed, may well have inflicted on the system a disturbing shock that opium alone could calm; but now there cannot be the same need for this potent agent.

"It is, however, clear that if in these cases opium did not promote the vital healing process, at least it did not retard it: or such obstacles as the first case presented would not have been overcome, and the second would not have progressed so steadily and favourably. This circumstance in itself is, I think, novel and instructive.

"Perhaps, however, if we consider the matter more closely, it may appear not difficult to understand why no unfavourable, but, on the contrary, a beneficial result was produced by the opium. The condition of an ulcer, healing by granulations, may first be referred to as an extreme instance, illustrating the great waste of plasmatic material which occurs in such cases, and more or less in all that approach to it. Much of the effused plasma—effused too rapidly to be organized—is cast off as effete matter, having taken the form of pus; much is organized into the low type of the granulation structure destined to future re-absorption. This waste is needless—nay, injurious, as a drain to the system, and if it can be prevented, as sometimes it may, by applications that exclude the air, or restrained and limited, as is done by the common water-dressing, the reparative process goes on much better, and with less constitutional disturbance.

"Again, if, as in the cases before us, two fresh incised surfaces are brought together, and the aim is to induce them to unite by the first intention, what can be more prejudicial to this than the effusion of much plasma, or any, the least, approach to the above-mentioned condition? To form a connecting medium across which capillaries may anastomose and fibres unite, the thinnest film of exudation is sufficient, and the thinner the better; for the organizing process is of neces-

sity slow, far slower than the exudative; the capillary loops must take many hours to unite, the opposed fibres some days to blend by means of the connecting material, and the further the old surfaces are separated, the longer this must be delayed, and the more of the exuded matter, which itself has produced the separation, will pass into the form of effete and purulent fluid. Now, this tendency to the excessive effusion of plasma, opium very probably restrains; somewhat, it may be, as it restrains a flux from a mucous surface; the hurried action is stilled, the vascular excitement tending to inflammation allayed, the sedative influence of the drug assisting Nature in her work, by preventing that which would mar or delay it. The imparting of energy to the extreme arteries, which Dr. Pereira speaks of, we know from observation to be the restoration of their tonicity, enabling distended, relaxed, and congested vessels to resume their natural calibre, and thus to transmit a due and not excessive quantity of blood in a current of proper velocity to the parts they supply. The restoration of the proper function of the arteries, 'the conductors and disposers of the blood,' as John Hunter accurately defined them, will manifestly tend greatly to prevent the excessive effusion of plasma, and thus remove at least one obstacle to the progress of reparation.

"It seems therefore reasonable to expect that opium, so long as it does not manifestly disorder the nervous system or the organic functions, would tend powerfully to promote the healing process, and this expectation is amply borne out by the results of the cases recorded."

Formerly I was in the habit of exhibiting two grains of opium immediately after the operation, and of repeating one grain every four or six hours; but experience has shown me that one grain given at once, and repeated every six hours, will serve every purpose. Its primary object is to keep the bowels quiet, and it should not be pushed so as to produce decided narcotic effects, except only when pain or spasm calls for its full action. Moreover, the effects of the opium should be carefully watched by an experienced person, and its administration withheld, for a longer or shorter time, when any undue

drowsiness supervenes; for there are certain cases of idiosyncrasy in which opium operates with peculiar energy, just as there are others, in which it is difficult to obtain its narcotic effects at all. The habits and constitutional peculiarities of every patient should therefore be carefully inquired into, in order that our treatment, whether with opium or other medicinal agents, may be successful and secure against risks.

The need of the considerations just laid down has been suggested to me by the history of a case reported to me in a letter by Mr. G. Greaves, of Manchester. This able surgeon has adopted my operations successfully in several cases of ruptured perinæum and of prolapsus uteri; but one patient, just alluded to, he lost from the effects of opium. He was giving one grain only every six hours; but the nurse in charge, although she observed the patient to be very drowsy, took upon herself to repeat the dose without troubling herself to ask the advice of the medical assistant who was watching the case. To explain the fatal consequence following this negligence and imprudence Mr. Greaves feels compelled to assume the existence in this patient of a peculiar idiosyncrasy, rendering her unusually susceptible of the soporific effects of opium. At the same time he insists on the necessity of putting the administration of the drug in the hands of a medical man capable of watching its effects, instead of leaving it to an uninstructed nurse, or other non-medical person.

The mode of treatment—operative and general—now set forth, is, in my opinion and according to my experience, applicable in all instances of rupture of the perinæum advanced to the extreme degree. I will arrange my leading opinions under the form of the following propositions:—1. That the worst forms of lacerated perinæum, of however long standing, may be cured by the operation. 2. That immediately on the occurrence of the accident it may be resorted to not only without danger, but with almost invariable success. 3. That the operation may even be performed three or four days after the accident, although the parts may be in an unhealthy condition. 4. That those forms of perinæal laceration in which the sphincter is not involved should be cured to prevent pro-

lapsus uteri and other pelvic derangements. And 5. That the restored perinæum is not by any means necessarily torn by, nor prejudicial to, subsequent parturition.

CASES.

To keep my matter within compass, and to avoid enlarging the size of this volume unnecessarily, I have abbreviated the histories of the cases very considerably, avoiding particulars and daily records of progress, except in such instances as offer some point for reflection, or for illustration of the practice pursued. At the same time, it has seemed desirable to give two or three of my first cases more in detail, in order that the principles which then regulated my treatment, and the modifications increased experience has since suggested, may appear.

The order in which I propose to describe the following cases is pretty much that of the propositions above laid down. The fourth and fifth of these, indeed, are not to be illustrated by a particular class of cases, but by the previous and subsequent history of cases of each variety of ruptured perinæum. At the same time, I shall so group the cases that those of *complete* rupture come first, then those of *incomplete*, and lastly, those of *perforation*. Some of these cases have already been made public either in my printed Essay, or in papers read before the Medical Society in London, or published in the medical journals, but others have not before been detailed. The list might, moreover, be much extended by the records of operations performed by several friends, which they have kindly furnished me with. This proceeding, however, is not called for.

Moreover, I may observe that not a few of the recorded cases of perinæal rupture, by being complicated with displacements of the pelvic viscera,—of which indeed the rupture itself is a cause, serve also as examples of such pelvic lesions and of the treatment suitable for them.

I am now enabled to bring forward such a number of cases, in which I have operated successfully, as ought to establish the value of the operation and general treatment advocated. Thus of the eighty-one cases presently detailed, as many as seventy-

five of them were cured—*i.e.*, had the integrity of the perinæum completely restored along with the sphincter power of the anus, which in by far the largest proportion had previously been lost. Oftentimes, too, the restoration of the perinæum also effected the cure of subsidiary lesions—viz., of displacements of the uterus, bladder, and rectum, and thereby converted a life of constant misery and suffering into one capable of enjoyment and happiness.

Three deaths occurred, in each instance from pyæmia. The operation failed in only three patients: in one, a woman sixty-five years old, of enfeebled constitution (Case XIX.), in whom the lesion had existed twenty years; in a second (Case LXII.), in whom a fistulous opening remains, which awaits treatment until she has done suckling; and in a third (Case III.) in whom the closure of the laceration was all but complete, and might readily be made quite so.

Case I.—*Rupture complete, fourteen years' standing: Delivery two and a quarter years subsequently: Remarks.*—Mrs. A. T., æt. 37, came under my care in 1851, suffering from an extensive laceration of the perinæum produced in her first labour fourteen years before, which was protracted for nineteen hours, and only terminated by instruments. She was unable to control the contents of the rectum when at all relaxed, and had in other respects no sphincter power. Any exertion would bring the uterus down to the os externum; and, on one occasion, when she was ascending a hill, it so far prolapsed that inflammation succeeded, requiring leeches, with rest in bed for some days, to subdue it. She could not stand for any length of time without suffering severely; and riding in a carriage produced much uneasiness. Her health was good. On examination, I found a rent extending through the sphincter ani to the rectum in such a way that a triangular isolated flap depended from the front of the rectum and recto-vaginal septum. The last indeed was gone, most probably by sloughing, and hence a considerable chasm existed in the anterior part of the rectum. There were also prolapsus of the mucous membrane of the bowel, and a small polypus uteri.

Notwithstanding such extensive lesions and their distressing consequences, this lady had never had the nature of her case recognised, or at least pointed out to her, during the fourteen years which intervened between the accident and the time of her being submitted to my treatment. In this interval, moreover, she had given birth to five other children.

On a previous visit to London, I removed the protruding mucous membrane and polypus, and advised an operation to restore the perinæum. After consulting Sir C. Locock, she returned to the country for two months, and then came to town to place herself under my care.

On the 15th of August I proceeded to perform the following operation, assisted by Messrs. Coulson, Lane, and others; chloroform being administered by Dr. Snow.

Having placed the patient in the position for lithotomy, I pared the cicatrices on each side from mucous membrane to the extent of an inch in width, and about two inches in length. The edges of the bowel, which were drawn back (everted) by the absence of the anterior portion of the sphincter, I also denuded, and after this was accomplished, brought the whole together by three quill sutures in the manner heretofore described, finally stitching the outer margins by small interrupted sutures. On passing one finger into the vagina and another into the rectum, I found a space not in apposition; this I closed by the introduction of another suture through the vagina and rectum.

The operation lasted an hour. After sponging the parts perfectly clean, and having placed the patient in bed, cold-water dressing was applied to the wound, to be renewed every three or four hours; two grains of opium were given at once, and one grain ordered at 7 o'clock. The catheter was used every four or five hours. On each occasion the parts were carefully sponged with cold water, and every portion of secretion cleansed away.

16th. At 4 A.M., gave her some wine and water, after which she obtained four hours' sleep. There was no undue swelling of the labia. She was allowed wine and water, and coffee. One grain of opium given every four hours.

17th. No sleep to-day. A grain of opium given at 9 A.M., and at 1 and 10 P.M. Besides wine-and-water, some mutton was taken.

18th. Passed a bad night, having been disturbed. At 4 A.M., two grains of opium were ordered. At 11 A.M., wine and brandy were freely given to overcome faintness. Catheter introduced every five or six hours, day and night.

19th. Had a better night. Complains of an aching, and at times of a sharp pain within the vagina. There is a free discharge. 11 A.M.: the pain continues. I removed the last *external* suture. In the afternoon ordered warm fomentations and sponging. Two grains of opium in two doses were taken during the past night; one grain ordered this evening.

20th. When seen at midnight, she had great pain, especially about the orifice of the urethra, of a darting and aching character. On examining *per vaginam*, I found the now purulent discharge escaped by pressure from within through an opening close to the sphincter ani. She now told me, for the first time, that on the last two days wind had passed from the bowel through the vagina To close this recto-vaginal opening, I removed all the sutures, and divided the sphincter ani at the posterior part; the united portion of the perinæum was immediately drawn towards the vagina, and the fissure throughout closed most accurately. Half-past 1 P.M.: a very free discharge of a sanguineous character. She is much more free from pain. Towards the evening the discharge became more purulent. Catheterism every five or six hours.

22nd. Half-past 2 A.M.: great pain in the rectum from the matter not escaping freely. During the day this was assuaged, and healthy granulations were visible.

25th. On this, the tenth day, the patient was allowed to empty her bladder, supporting herself on her hands and knees.

26th. I consulted with Mr. Lane, and determined to pare the edges where mucous membrane existed. To do this, I placed the patient under the influence of chloroform.

27th. I injected some warm water into the rectum, first plugging the vagina, to prevent any escape of feculent matter into it, when the bowels were relieved for the first time since the operation twelve days ago.

31st. Has gone on well. The granulations springing up freely.

Sept. 1st—12th. Going on favourably. The catamenia have appeared.

19th. The catamenia having subsided for twenty-four hours, I examined carefully, and was pleased to find the fistulous opening by the side of the anus much less than it was a week since. The mucous membrane, however, had joined the skin on the left side of the opening, thus arresting all granulations there, and preventing union. I therefore determined to pare the edges of the opening, and then to bring them together by a good deep stitch with a double silk suture. This I did to-day, and completely closed the passage. Two grains of opium were ordered at once, and one grain every two hours, to prevent pain and to arrest the action of the bowels. At 8 P.M. I emptied the bladder by catheter, and watched all night. The new perinæum produced was thick and sound.

20th. At 3 P.M. she was very sick, and vomited freely; after which she slept at intervals. At 11 A.M., on again using the catheter, several clots of blood came from the vagina. I directed her to pass the urine herself next time, by kneeling on the bed. 6 P.M.: has voided urine as directed, and some more clots have come away. There is no undue swelling of the sutured parts. She has taken some solid nourishment and some wine.

24th. I removed the suture, and found that only partial and slight adhesion had taken place close to the orifice of the anus, and that a sinus existed, the size of a goose-quill, between the vagina and perinæum.

25th. The bowels have acted by injections of warm water and a seidlitz powder. She has now perfect control over the contents of the rectum. I painted the orifice of the sinus with acetum lyttæ, to stimulate the granulations, and ordered the bowels to be kept gently relaxed.

29th. The sinus is diminishing, and the granulations filling up the space in front of the anus. The acetum lyttæ was again applied.

Oct. 5th. The process of granulation continuing very tardy, although the acetum lyttæ had been brushed several times during the last few days over the surface; and as the patient, feeling so nearly well, was extremely anxious to get home, I determined to make use of the actual cautery to deprive the surface of the sinus of all mucous membrane. This was done, and attended with success, and in a short time the sinus closed, and my patient was able to return home on the 7th October, to enjoy a degree of comfort she had not known for years. There was a good strong perinæum, and the sphincter ani performed its functions accurately.

Nov. 1st. I have heard from my patient since her arrival home. She has greatly improved in health and strength, takes horse-exercise daily, and walks about with facility. Her bowels have acted comfortably, and no prolapse of the uterus has appeared. The case, therefore, must be deemed completely successful.

It will be seen that I did not divide the sphincter ani on the day of operation, but a few days subsequently. This was wrong. In my subsequent cases I have recognised this section as a leading principle in the operation, and have accordingly made it at once. Nothing could prove the importance of this procedure more clearly than this first case; for although adhesion took place anteriorly very satisfactorily, still, prior to the division of the sphincter, the edges posteriorly became drawn asunder after the removal of the sutures; whereas, immediately on making the section, they were brought into contact and steadily kept so. Further, in my first essays at operating for ruptured perinæum, I was of opinion that an incision on one side only of the sphincter was necessary, but subsequent experience has led me to prefer one on each side.

I am now able to add to the history of this my first published case, the result of the test of delivery on the restored perinæum.

Jan. 17th, 1854. At 10 A.M, I was sent for to this lady, who was taken in labour at the full period of gestation. Its progress was slow. On making an examination I found a natural head presentation, At 4 A.M., the membranes broke and the head proceeded to descend on the perinæum, which was strong, safe, and dilatable; before labour it was 1½ inch in length, and now by the pressure of the head, it elongated to 3 inches. Unfortunately, the head was unusually large, and continued to rest on the perinæum for three hours, the pains forcing strongly. Fomentations and lard were applied, and the uterine contractions calmed by the administration of chloroform. At length a strong pain thrust the head through the outlet, causing a laceration of the perinæum, about an inch in length, in the median line. Great care was used in the delivery of the shoulders, but they were so large and broad that the rupture was extended half an inch farther, not in the median line, however, but to one side, the tear passing upwards obliquely, and leaving the sphincter and recto-vaginal septum intact.

After the removal of the placenta and of the clots of blood from the vagina, an interrupted suture was passed through the oblique fissure, and the quill suture applied to that in the median line. The thighs, as usual, were afterwards brought and kept together, and the patient placed on her side. Every four hours, the urine was ordered to be withdrawn, and a grain of opium given. January 21st. Removed the deep sutures; union established; the parts looking well. 26th. An enema administered; there is complete control over the sphincter, and the parts are well united. She went on very satisfactorily; and the perinæum was completely restored.

It seems clear from the extent to which the perinæum became dilated, and the length of time it withstood the pressure of the head forcibly propelled against it, that, had the head and shoulders not been of so great dimensions, the perinæum would have escaped even the partial rupture it suffered. I should state that the head was 14½ inches in circumference, and the shoulders 17½ inches.

Thus, although this particular case does not precisely prove the proposition advanced, that "subsequent parturition is possible without injury of the restored perinæum," it proves that the sutured parts do not form, as it has been said they must do, a hard, unyielding cicatrix; but that, on the contrary, they are sufficiently dilatable to afford the best hopes of delivery without injury, under ordinarily favourable circumstances; as much so, I believe, as uninjured structures.

Under no pretence, surely, can the result of this case be quoted as inimical to the attempt to restore a ruptured perinæum in a female likely again to bear children. This patient's existence had been embittered by the local injury for fifteen years; and by the treatment adopted she was entirely cured, and restored to the enjoyment of life, continuing well from October, 1851, to the date of her recent confinement. Moreover, notwithstanding the protracted and difficult labour, which would have equally jeopardized the integrity of any perinæum, the injury she sustained was not great, and was remediable with little trouble.

It may be just noticed that the history of the above case serves to illustrate each one of my propositions, more or less completely.

CASE II.—*Rupture complete, of two years' standing: Cure.*—Ann J., æt. 40, admitted November 7th, 1851, into St. Mary's Hospital, with lacerated perinæum, which occurred two years since, when she had a difficult labour, and the vectis was used. A sudden pain came on, and drove

both child and vectis through the perinæum. The sphincter ani is torn through, but there is a firm mucous band which separates the rectum from the vagina. She cannot retain her fæces; has had nine children, the last six or seven months ago; all her labours have been difficult, but she never had an instrument used until the above occasion. Her health has always been pretty good.

12th. The sides of the lacerated surfaces were denuded for three-quarters of an inch wide, brought together by quill sutures, and then by very fine interrupted sutures. The sphincter ani was divided, and water-dressing applied. The operation was performed under the influence of chloroform. As soon as she recovered from its effects, she was ordered opium, gr. i. directly; to be repeated every three hours. She was placed on her left side on a water cushion, the urine was drawn off every four hours; port wine, one ounce in water, and beef-tea.

13th. Has not slept, but has been quite easy. Pulse 76; tongue clean; skin cool. To have wine, two ounces, mutton-chop cut up fine.

14th. Pulse 100, tongue a little white; skin rather hot; appetite good; has slept very well; wound looking well; still some sanious discharge from the anterior part. Water drawn off every six hours. Wine and beef-tea and opium continued.

15th. Is quite easy and sleeps well; the discharge from the anterior parts is getting more purulent; pulse quiet. No pain; tongue slightly white.

16th. Going on well: no blood mixed with the discharge; the anterior part of the wound has not quite united; the posterior part seems to have done so; less œdema. Continue the pill night and morning.

17th. Rather flushed, with quick pulse; some little pain. Not to have a chop to-day, nor wine.

18th. Easier, though she still complains of being flushed occasionally; the quill sutures were removed; there is much less swelling; the greater part appears to have united well. To go on with her chop and wine.

20th. Going on well; has frequent desire to pass her water, and occasionally lets a little dribble from her; urine still drawn off every five or six hours. The anterior part has not quite united.

21st. Union seems pretty firm. 10 P.M.: has passed a copious motion, without apparently disturbing the union, and without taking an aperient; feels now much more comfortable; still continues the opium.

23rd. The union seems quite firm; externally there is the appearance of a small opening near the anus, but it cannot be felt on the inside with the finger; bowels have not been again open. This morning she, for the first time, passed her water herself, supporting herself on her hands and knees, and had the parts washed afterwards whilst in that position: she suffered no scalding or other pain; to omit the opium.

25th. Bowels open; the small opening still remains, and pus oozes out when pressed from the vagina inside; nitrate of silver was applied to it; the remainder has perfectly and firmly united, a mere line marking the junction.

26th. The fistulous aperture touched with tinct. cantharidis; appetite and spirits good. Wine and meat every day.

December 3rd. Three weeks since the operation. She is perfectly well, and the bowels act freely and are under entire control.

12th. This patient left the wards of the hospital, and returned into the country perfectly cured.

The progress of this case was highly satisfactory, union having taken

place rapidly without a single unfavourable symptom, and without any retraction of the sutured parts. This good success I attributed to the division of the sphincter: subsequent experience has taught me I was right in so doing.

CASE III.—*Rupture complete, of seventeen years' standing: Previous operation and failure: Result.*—Mrs. D., æt. 45, admitted into St. Mary's Hospital January 30th, 1852. Seventeen years ago was confined with her first child. The labour being difficult, the surgeon (so the patient stated) used a boot-hook instead of the usual instruments, and ever since then she has had no control over her bowels. Since the birth of this child she has had five others.

Fifteen months after the accident, an operation was performed. Her legs were kept tied together for ten days; the parts were stitched up with four quill sutures; the urine was not drawn off, but she passed it lying on her face; its escape was attended by much smarting pain; opium was given, and the bowels prevented from acting for ten days, at the end of which period the sutures gave way, the edges diverged, and the patient found herself in a worse state than before.

She has generally been unable to move about or to leave home; and has resorted to opium and burnt rum before daring to go out. On one occasion, being unable to control the dejections, she was seventeen hours and a half on the night-stool; and on another, a fortnight ago, ten hours.

The whole of the structures between the vagina and rectum have been torn through; there are no remains of the anterior half of the sphincter ani; and but little loose integument about the margins of the chasm in the perinæum, owing to the former operation.

An operation being now decided on for February the 4th, on the previous morning a purgative was given, the action of which prevented her leaving the night-stool from 7 A.M. till 1 P.M., and then only after taking opium and wine.

February 4th. After paring the edges of the fissure, the septum intervening between the vagina and rectum was next denuded; and then an incision carried through the sphincter ani on each side of the os coccygis, downwards and outwards, dividing the skin to the length of two inches. These free incisions allowed the sides of the fissure to be approximated much nearer. This done, three quill sutures were introduced to secure apposition,—the sutures being passed nearly an inch from the margins; these lastly were brought together by five interrupted sutures.

Anæsthesia had been kept up by chloroform, and so soon as this had passed off, two grains of opium were given, and one grain ordered every four hours. The catheter to be passed every four hours, and cold ablution practised each time; the usual water-dressing; ordinary diet; and port wine, three ounces per diem.

5th. Edges of wound uniting by the first intention. She has slept pretty well; towards morning became sick, and continued so at intervals till 12 o'clock. She lies on her side, with the knees drawn up and close together. The opiate continued.

6th. The sickness has ceased. She sleeps a good deal, and has very little pain. Wound looking well. The urine withdrawn every four hours.

7th. Going on well. Catheter used every six hours. She has a very troublesome cough, which distresses her much, by causing a strain upon the sutures.

11th. The deep sutures were removed on this, the seventh day from the day of operating. Progress favourable.

Without entering into further daily details of the progress of the case, I may observe generally, that the principles of treatment laid down in the previous pages were carefully carried out. In this instance, I kept the bowels confined for no less than eighteen days.

When the patient quitted the hospital, a fistulous communication between the vagina and anus existed, which could have been easily cured if the patient had submitted to treatment. I afterwards learnt from the nurse that she never would remain quiet in bed, which would readily account for the partial failure.

CASE IV.—*Rupture complete, eight months' duration: Previous operation and failure: Cure.*—Jane McJ., æt. 19, admitted into St. Mary's Hospital, March 12th, 1852.

Eight months ago was delivered of a male child, after a protracted labour and the use of instruments. The perinæum was torn through to the rectum, and the sphincter divided.

Three weeks after the accident an operation was attempted, and failed. Castor oil was given the day following the operation, and its action (as the patient represents it) caused the united parts to give way. The sphincter ani was not divided by the operator. The urine was not drawn off, but she was allowed to get up and pass it herself,—this produced great pain.

She has now no control over her rectum, the anterior portion of its sphincter being lost.

March 17th. After the usual preparatory treatment, the operation was performed just as in the preceding case, and with the aid of chloroform. Three quill sutures were used. Two grains of opium were ordered at once, and one every three hours afterwards. The urine drawn off every four hours.

Nothing occurred sufficiently peculiar to warrant a lengthened report. The patient progressed satisfactorily, and was discharged quite cured, having a good perinæum, and complete control over her bowels.

This case, like the last, had been previously operated on unsuccessfully, and a severe fissure remained. I took the precaution to make a very free incision on each side through the sphincter, involving the skin to the length of two inches. This allowed the adjoining tissues to be freely drawn towards the united edges of the wound, and thus prevented tension on the sutures.

I have subsequently (Nov. 1853) seen and examined this patient, and found the perinæum complete, and the anus perfect in its action.

CASE V.—*Rupture complete, seven weeks' standing: Destruction of recto-vaginal septum: Cure.*—Mrs. W., æt. 39, admitted 23rd April, 1852, into Boynton ward.

Seven weeks ago she was confined with her first child (male). She had a difficult labour: instruments were employed, and complete rupture of the perinæum, extending through the sphincter ani and recto-vaginal septum, ensued. From that period she has had no control over her evacuations.

On the 28th I performed the operation as usual; on account of the great deficiency of sphincter muscle anteriorly, the first deep suture was passed close to the rectum, so as to bring the pared edges at that part closely together, the usual incision through the sphincter having been previously made.

May 4th. Removed the deep sutures. A small recto-vaginal opening is discoverable; apply strong acetum lyttæ to its walls.

11th. The bowels were moved on the twelfth day, by the usual means. The recto-vaginal opening not closing as quickly as could be wished, I submitted the patient to the influence of chloroform, and then, introducing a rectum speculum into the bowels, and a uterine speculum within the vagina, I obtained a perfect view of the fistula, and applied to it the actual cautery by means of a bent iron instrument.

After two or three weeks from this date the opening completely closed up; the patient had a perfect and strong perinæum, and entire control over the bowel.

This patient was subsequently confined without any laceration of the restored perinæum.

Case VI.—*Rupture complete: Destruction of recto-vaginal septum: Cure: Subsequent delivery.*—Harriet M., æt. 46, admitted into St. Mary's Hospital Feb. 25th, 1853. The mother of four children.

The birth of her first child was difficult, and effected by instruments, with the production of lacerated perinæum. Since that accident her health has failed; she has been unable to retain her motions; suffered much from irritation of the parts, and other concomitant evils, but not from bearing down or prolapse. Each succeeding labour has aggravated the local mischief; and there is now, besides ordinary complete perinæal rupture, a destruction of a portion of the recto-vaginal septum.

March 9th. Operated in my usual manner. A protruding piece of mucous membrane from the bowel had to be removed; great care was taken to denude the recto-vaginal septum, and a very free incision made through the sphincter ani. Lint saturated with oil was inserted in the sphincter incisions. The usual water-dressing was applied, and warmth to the feet. Her weak bodily condition demanded extra wine, and on the 15th, when the quill-sutures were removed, some sloughing was found about them.

18th, Some of the adhesions gave way, and the slough on the left near the sphincter incision came away, and revealed an opening into the cavity beneath.

April 5th. The anterior margin of the anus which was deficient is well granulating forwards; the rectum is quite separated from the vagina by the adhesions set up.

9th. I denuded the prominences on each side the gap, and brought them together by two sutures of silver wire. The patient inhaled chloroform during this process; she was afterwards ordered four oz. port wine, and a grain of opium every four hours.

May 3rd. Perinæum is strong; two inches deep. She can now control the bowels, even when suffering with diarrhœa, has no bearing down, and is sensible of the passage of the stools, which she formerly was not.

Case VII.—*Rupture complete, eighteen months' duration: Subsequent delivery: Cure: Remarks.*—Mrs. C., æt. 26, the mother of two children. In her second labour, eighteen months ago, the perinæum was ruptured by the passage of the shoulders. No instruments were used.

On examination, the entire perinæum and the sphincter were found lacerated, and the control over the bowel lost. She was again three months pregnant. However, I determined to perform the operation.

Nov. 12th, 1852. After the operation was completed in the usual way,

two grains of opium were immediately given, and one grain ordered every three hours following.

The only peculiarity in this case was that I had to tie a small artery at the edge of the rectum, cutting the ligature off close.

18th. Removed the sutures. Examined *per vaginam;* could discover no communication between the rectum and vagina. Washed out the latter by an injection, and removed some hardened coagula.

23rd. A dose of castor oil, and four injections of it, mixed with water, produced a copious alvine evacuation without inconvenience, the restored sphincter acting perfectly.

29th. Is now convalescent.

This patient was introduced to me by Mr. Knaggs, of Euston-square, who, with Mr. Osmar King, Dr. Rogers, and others, was present at the operation. The second-named gentleman kindly sent me (June 1st, 1853) a highly gratifying communication, to the effect that Mrs. C. had been safely confined, and that no damage had resulted to the restored perinæum. I cannot do better than transcribe his account of the event. He writes:—

"I was sent for on the evening of the 24th of May: the pains were slow but at pretty regular intervals of twenty minutes; the os dilated to the size of half-a-crown, the membranes protruding; presentation favourable. The vagina and os were excessively tender. Fomentations were used from this time. The waters were kept entire till they had well performed their duty; and the head was protruded about an hour afterwards, safely, though a very large child. There was a slight tear of a quarter of an inch *laterally* at the fourchette, but the old cicatrix is uninjured. The bowels were relieved on the third day, and there was and is perfect control of their functions. Mr. Knaggs was present, and administered chloroform during the pressure on the perinæum and expulsion of the head. I confess I felt a little nervous as to the result, especially having been told by an eminent obstetrician, a short time previously, that 'go it would.'"

This patient was subsequently operated on in Oct. 1859, the perinæum having unfortunately been torn in a subsequent labour. The history of this second operation is now recorded, but it is dealt with as an independent case.

Case VIII.—*Rupture complete: Cure.*—Mrs. C., æt. 34. This lady was operated on previously in November, 1852, as just recorded, and the perinæum perfectly restored. In two confinements following the perinæum remained uninjured, but in a third—the fifth in all (under the care of another surgeon)—it was completely torn through, and she became afflicted with loss of control over the rectum and prolapse of the womb.—Oct. 5th, 1859, I operated in the usual way, a few hours after the labour; Mr. Knaggs, the patient's father, being present. She was very anæmic and weak, and required much upholding. Oct 17th. The bowels have been freely relieved, and the control over the sphincter was found to be perfect. The perinæum was also completely restored. I have recommended that if she again become pregnant she should be delivered at the seventh month.

Case IX.—*Rupture complete, of eighteen months' standing: Cure.*—Sarah S., æt. 22, admitted into St. Mary's Hospital Nov. 29th, 1852; states she has never been well since fourteen years of age. Complains of dyspeptic symptoms.

The perinæum was ruptured eighteen months ago, in her first and only confinement, when instruments were used. The laceration extends through

the perinæum into the rectum, merely a band of mucous membrane separating the two canals. No operation has been attempted on account of her weak health.

Having by medical treatment been considerably improved in health, the operation to restore the perinæum was performed in the usual way on the 22nd of December.

The after-treatment was according to the plan described, and the satisfactory progress of the case offered no particulars worthy of a daily record. On the tenth day, a careful examination, *per vaginam* and *per rectum*, proved union to be complete and firm; and on the following, the eleventh day, the bowels were allowed to empty themselves, assisted by repeated injections of warm water. This case proved entirely successful.

Case X.—*Rupture complete, of five years' duration: Result.*—Mrs. E., æt. 39, came under my care on January 13th, 1853, at the recommendation of Sir C. Locock.

Five years ago she was delivered of her first child; instruments were used, and laceration was the consequence. She has since had two other children, but never any control over her bowels.

The perinæum and anterior portion of the sphincter ani are destroyed; the uterus presses on the rectum, and ordinarily produces great difficulty in the passage of the fæces through the bowel, but when she takes medicine she cannot check the alvine discharge when once it begins. The catamenia did not appear at the last regular period.

On the 24th I operated in the usual manner; Sir C. Locock, Messrs. Coulson and Nunn being present. The patient was submitted to the after-treatment advised, and everything went on well. On the 28th I removed the superficial sutures, and two days afterwards the deep ones. The edges of the fissure were firmly united.

24th. Left town quite well, and wrote to tell me she had arrived at Cheltenham without the slightest inconvenience.

I have lately (1859) seen this lady, and found her quite well locally and generally.

Case XI.—*Rupture complete: Destruction of recto-vaginal septum, of sixteen years' standing: Death: Autopsy.*—C. B., æt. 42, admitted February 12th, 1853, into St. Mary's Hospital. Has had four children. The accident happened in her first confinement with a male child, having a large head; no instrument was used. The laceration has been aggravated by the three subsequent labours, which were, like the first, rendered more difficult by the size of the heads of the children, who have in each instance been male. The injury has now existed sixteen years, The rupture extends through the perinæum and sphincter ani, and much of the recto-vaginal septum is lost. She cannot retain her motions: there is a constant dragging from the loins, and a bearing down, especially upon exertion. The general health appears tolerably good. No operation has hitherto been attempted. As an aperient I gave her, pil. hydrarg. gr. iij., fel. bovin. gr. x., at bed-time.

On the 16th, I performed my operation in the usual manner, the patient being under the influence of chloroform. The operation presented no special features to detail: immediately after it, I ordered two grains of opium, and one grain to be repeated every four hours. In the evening she was rather restless.

17th. Did not sleep last night, Eyes staring; expression wild; catheter introduced every four or five hours. Water dressing to wound.

19th. Catamenia appeared. Parts looking very healthy; healed externally by the first intention. Complained in the evening of chilliness, and was restless; the face flushed, and pulse quick. Omit the opium. Ordered, ℞ spt. ammon. arom. ʒj., mist. camph. ℥j., liq. opii sedativ. ♏ xx., to be taken at once.

20th. Still restless, with quick pulse. Says she has not any pain. ℞ conf. opii gr. v. ter die.

21st. Still feverish, with agitated, unquiet manner. Has hardly slept since the operation. Is thirsty; tongue nearly clean. ℞ mist. potass. effervesc. ℥j. ter die. In the evening, as she was still without sleep and restless, a grain of acetate of morphia was given.

22nd. Slept well last night; says she feels better. There is still, however, a restless manner and expression. The superficial sutures removed.

23rd. Passed a restless night. Had shivering this morning, and is now flushed and perspiring. Pulse quick, weak. Manner agitated. ℞ spt. ether. sulph. co. ♏ xv., spt. ammon. arom. ♏ xx., tr. hyoscyam. ʒ ss. mist. camph. ℥j. statim. This draught was repeated at noon, and spt. camph. co. ♏ xxx. ordered at bed-time. At 12 P.M. was sleepless, restless, and anxious; without pain. To have at once a grain of acetate of morphia.

24th. Slept but little last night. The wound this morning shows a tendency to slough. She has no pain nor tenderness of abdomen. Ordered brandy every four hours. Lotio nigra to the wound. ℞ potass. chlorat. ʒj., tr. cinchonæ fʒj., dec. cinchon. f℥j. ter die.

At four this afternoon had a distinct rigor, which lasted upwards of half an hour, with blueness of face and cold extremities. Pulse 168, small, feeble. Repeat the ether draught, and take mixture every three hours. The deep sutures removed.

In the course of the night she became very restless, and the countenance anxious; face congested; abdomen tender on firm pressure being made, especially at the lower part; breathing hurried; expiration attended by a loud creaking noise at the base of both lungs; the heart's action hurried, feeble. Brandy was given freely, but it did not rally her, and she gradually sank, and died about six o'clock.

A post-mortem examination was made. The uterus was enlarged and much inflamed, but contained no pus. The Fallopian tubes were also highly vascular and inflamed, and contained pus, which oozed from their extremities. A small quantity of pus appeared in the pelvic cavity. The peritonæum and the intestines in the lower region of the abdomen were highly vascular. There was a slight serous effusion in the pericardium; a deposit of lymph, and congestion about the base and posterior part of the left lung.

This case suggests the necessity of examining into the previous history and condition of a patient, in determining on the advisability or prospect of success of operation. This poor woman was particularly leuco-phlegmatic, without tone or muscular vigour. Several years ago she had a whitlow lanced, which would not heal until after a sojourn at the seaside for two months; and she at all times exhibited a low vitality. Of these circumstances I was not informed until after her decease.

CASE XII.—*Rupture complete: Cure.*—H. W., aged 48, admitted into St. Mary's Hospital July 2nd, 1854. About six months ago, on consulting Mr. World, of the City Road, for great pain and difficulty in pass-

ing water, and in controlling her bowels, he recognised the fact that her symptoms proceeded from rupture of the perinæum, an accident which had happened a long time previously, but of which she was hitherto unaware. The perinæum proved to be completely torn through, but an imperfect closure of the sphincter ani, by a band of mucous membrane, gave her some slight control over the alvine discharges.

The operation took place on July 20th: opium was given, and the usual after treatment followed in other respects. On August 24th, she was discharged, *cured.*

Case XIII.—*Rupture complete, five years' duration: Cure.*—J. A., æt. 27, admitted into St. Mary's Hospital Nov. 20, 1854, at the recommendation of Mr. Peter Marshall, of Bedford-square: was confined of her first child five years' ago: the labour lasted three days. Instruments were at length used, but, after her confinement, she found she could not control the action of the bowels. Six months afterwards she was operated upon, but although kept to her bed for nine months, she obtained no relief. Her sufferings have been aggravated by some prolapse of the uterus. Dr. Lee having previously seen and examined her, the operation was performed on the 22nd of November, and she was discharged cured on the 22nd of the following month. At the time of her discharge, and two months after that period, when I examined her, she fancied there was an occasional escape of flatus into the vagina; but, although carefully sought after, no trace of a recto-vaginal aperture could be discovered. Moreover, the patient did not complain of the supposed escape as of the slightest moment to her comfort and well-being.

Case XIV.—*Rupture almost complete, fourteen weeks' duration: Recto-vaginal fistula; Cure.*—M. G., æt. 24, was placed under my care, with the view of being operated upon, by Mr. Harper, of Farringdon-street. The perinæum was ruptured during her first confinement, the expulsion of the child being rapid, fourteen weeks since. She shortly discovered the perinæal injury, and likewise the escape of the fæces and flatus from the rectum into the vagina.

Upon examination, the sphincter ani was found almost entirely torn through, some of its deep fibres only being left. A few lines higher up was a recto-vaginal opening, that had evidently been at first large enough to admit the forefinger, but was now reduced to the size of a probe-point. Besides the discharge of wind, and of fæcal matter when at all fluid, through the fistula, the uterus prolapsed into the vagina.

Dec. 7th, 1854. The usual operation performed. Mr. Harper and Mr. Hutchinson kindly assisted me. Nothing remarkable occurred in the future history of this case, and recovery followed, and was complete by the end of December.

Case XV.—*Complete rupture: Cure.*—H. M., æt. 38, sent to me by Dr. Cape; is the mother of two children; the perinæum was torn in her first confinement, which extended over seventeen hours. On examination, I found one half of the sphincter gone, and some portion of the recto-vaginal septum; the anus was drawn upwards by the action of the levator ani. Operated on 18th June, 1855, Dr. Cape and Mr. George Brown assisting. On the 22nd, the deep sutures having been removed on the preceding day, she felt some disposition to relieve the bowels; to obviate

this at this too early period, I introduced an opium suppository, and also gave her an extra dose by the mouth. This proved effectual, and the bowels were not moved until the 28th. July 11th, Dr. Cape saw the patient with me, and, on a careful examination, the perinæum was found to be perfectly sound and entire, and the sphincter power restored.

This lady was, two years afterwards, attended in her confinement by Dr. Cape, when the perinæum escaped quite uninjured.

Case XVI.—*Complete rupture, twelve weeks' duration: Previous operation: Second operation: Cure.*—E. J., æt. 28, recommended to me by Mr. J. C. Jonson, of Grosvenor-street, Eaton-square, was admitted into St. Mary's Hospital in July, 1855. The perinæum was torn in her first confinement, on the 5th of May, 1855. Two months after the accident, her usual surgeon in Manchester operated upon her, but only partially succeeded, as she did not recover control over the evacuations when these were loose, and suffered from partial prolapsus uteri. On examination, I found that the operation had succeeded in restoring the anus, but not the perinæum. The patient was weak and low, and complained of some difficulty in passing her water, especially if she retained it for long. This I found arose from weakness of the anterior wall of the vagina, and consequent partial prolapse of the bladder into the vagina.

On July 21st, I operated upon her in the usual way. Union took place without one bad symptom, and in a fortnight she left the hospital to stay with a friend in the vicinity, until her health should be quite re-established. I subsequently heard from her in September, when she wrote that she was in the enjoyment of excellent health and strength.

This patient has since been twice delivered by my friend, Dr. G. Stephens, of Manchester, and no injury has resulted to the perinæum on either occasion.

Case XVII.—*Rupture complete, six weeks' duration: Prolapsus uteri: Cure.*—Anne C., æt. 25, admitted into Boynton ward Nov. 6th, 1855, with her infant at the breast, was delivered of a female child, feet foremost, after forty-eight hours' labour, six weeks previously. The pains were short, but very strong, and much force was used in removing the child. The perinæum was completely torn through, but a fibrous band had formed across the fissure at its posterior extremity, and the control over the evacuations was not completely lost, except when the bowels were loose, and then the fæces escaped involuntarily both through the ruptured perinæum and the vagina; the uterus also prolapsed. On the 10th of November, she was operated on, without chloroform, on account of a very weak heart and slow pulse. On the 10th, the deep sutures were removed, and on the 12th the superficial. On the 20th firm union had taken place, and she was discharged, cured, on the 2nd of December.

Case XVIII.—*Rupture complete, six months' duration: Cure.*—A. M. B., æt. 21, admitted Nov. 27, 1855, into St. Mary's Hospital. Six months ago was delivered of her first child after a tedious labour. At first she could not retain her urine, but latterly has somewhat recovered that power, though not completely. The fæces pass quite involuntarily whenever the bowels are at all relaxed. The uterus descends lower than is natural.—Nov. 28, operation performed. 30th, deep sutures removed. Dec. 3rd, the superficial withdrawn. 6th, bowels moved. 27th, Discharged quite cured.

CASE XIX.—*Rupture complete, twenty years' duration: Failure.*—M. D., æt. 65, admitted into Boynton ward Dec. 3, 1855. Twenty years ago was delivered of her first child, a breech presentation; from this time she could not retain her fæces when at all fluid. Had a second child eight years afterwards. Twelve months ago the uterus prolapsed, and added much to her sufferings. She is in the habit of taking opium, and, indeed, gets no sleep without it.—Dec. 3rd, usual operation performed. 8th, ulceration about the deep sutures, which were withdrawn. 9th, a good deal of bleeding occurred from the track of one of the sutures. 10th, bowels moved. Jan. 14th, discharged relieved, having gained increased power over the sphincter, although the operation has failed to restore the perinæum. The patient's health was so very bad, and her constitution so impaired, that I determined not to attempt to operate again upon her. She had a slight attack of paraplegia in the hospital after the operation. The passive hæmorrhage from the position of one of the withdrawn sutures was, no doubt, a consequence of the generally morbid state both of her blood and tissues, and itself added to her previous weakness. Her addiction to opium and gin-drinking was not found out until after the operation, otherwise this circumstance in connexion with her bad state of health, and her age, would have operated in dissuading me from undertaking it.

CASE XX.—*Rupture complete, two years' duration: Cure.*—Mrs. D., æt. 36, has had eleven children. At the birth of the tenth child the perinæum was ruptured, and all control over the bowel lost. An operation was performed with much relief by Mr. Bradley, of Greenwich, in Nov., 1854; but at the birth of the next child the parts gave way, and the patient was reduced to the same state as previously.—Jan. 26th, 1856. Although in the third month of pregnancy, I performed on this patient my usual operation, which by the 20th of February had perfectly succeeded in restoring the perinæum. I heard from Mr. Bradley, in December following, that she had been confined of a large child, and that the fourchette had given way for a short distance, but only required one suture to repair the tear and to make the perinæum again quite sound.

CASE XXI.—*Rupture complete, thirty years' duration: Relief.*—Mrs. B., æt. 47, was referred to me by Sir C. Locock. Thirty years ago was delivered of her first child, when the perinæum was ruptured, the control over the bowels partially lost, and incomplete prolapsus of the uterus and bladder induced.—March 21st, 1856. Operated upon as usual, assisted by Dr. Jones and Mr. Laurence. 23rd. Removed deep sutures. 25th. Superficial removed. Ulceration took place about the sutures and prevented the complete restoration of the perinæum, but she regained power over the sphincter, and the partial prolapse of the womb was remedied. The case was aggravated by a remarkable retraction of the anus, at least two inches higher up than usual, a circumstance due to the patient having been born with an imperforate anus, and to the operation undertaken for its cure. The bladder still prolapses somewhat, and needs another operation to restore it.

CASE XXII.—*Rupture complete, sixteen months' duration: Cure.*—Annette M'P., æt. 19, admitted into St. Mary's Hospital, May 16, 1856. Has had two children, perinæum ruptured in her first confinement in January, 1855, instruments used. Perinæum ruptured through sphincter, and control over the alvine evacuations lost.—On the 21st of May, the

usual operation was performed, under the influence of chloroform. Quill sutures removed on the 24th, and the interrupted sutures on the 26th. On the 14th June, she was discharged cured. Perinæum perfectly restored, together with the control over the sphincter.

CASE XXIII.—*Rupture complete, sixteen months' duration: Cure.*—A.M., æt. 19, admitted into Boynton ward, St. Mary's Hospital, May 17, 1856. She was delivered of her first child, with the aid of forceps, sixteen months ago; the perinæum was ruptured, and she entirely lost the control over the sphincter ani.—May 21st. Operated upon in the usual manner. 24th. Deep sutures, and two days after the superficial ones removed. The bowels relieved on June 5th, and on the 14th she went out quite cured.

CASE XXIV.—*Rupture complete: two weeks' duration: Cure: Second operation for recto-vaginal fissure: Subsequent delivery.*—Mrs. B., æt. 28. A fortnight since she was delivered of her first child, with forceps, but the laceration did not appear to occur until the child was propelled against the perinæum by a sudden violent uterine contraction. The fissure extended through the sphincter and far into the recto-vaginal septum. At the time she was seen by me the torn parts were covered over with mucous membrane; and it was necessary to pare them, just as in an older case. The operation was performed on September 11th, 1856, without chloroform. The bowels were moved on the 26th, and then some fæcal matter escaped through a recto-vaginal fistula. To remedy this a second operation was performed, and by the 1st of December the perinæum and septum were restored perfectly.

In this case, the proper course would have been to have operated at once upon the occurrence of the injury; but Dr. Murphy having been called in, advised a delay of eight days; a recommendation for which I can see no good reason, as the child born to this patient was large, whilst she herself was of small figure, and with a small pelvis: hence I recommended her not to go her full time, but to have labour induced at the end of the seventh month. This advice she neglected, and the perinæum again ruptured during her confinement in 1858. The record of this and the treatment pursued are given under Case XLVII.

CASE XXV.—*Rupture complete, fifteen weeks' duration: Cure.*—Alice M., æt. 17, admitted into St. Mary's Hospital on the 15th of July, 1856. Confined of her first, a male child, on the 30th of March, 1856, after eighteen hours' labour. Attended by a midwife. Perinæum was completely ruptured and the control lost over the action of the bowels. Operated upon in the usual manner on the 8th of October, chloroform being inhaled. Deep sutures removed on the 10th, and the bowels opened by castor oil and an enema on the 19th. By the 30th she was quite well.

This patient was previously operated upon, but having been seized on the second day after with scarlet fever, and being seriously ill, it was considered expedient to remove the sutures.

CASE XXVI.—*Rupture nearly complete, nearly nine months' duration, with much injury to the rectum: Relief.*—S. C., admitted into St. Mary's Hospital on September 11th, 1856. She was delivered of a large male child on January 28th, 1856, by the aid of instruments. Soon afterwards she found a portion of her motions passed into the vagina, and she suffered excruciating pains. About four months before her confinement she had

severe pain in the lumbar region, with frequent tenesmus, agonizing pain, and a discharge of blood and pus from the rectum. This continued up to the period of her confinement. On examination it was found that a portion of the perinæum and two inches of the rectum had sloughed away, a slight band of perinæum and a few fibres of sphincter remained. The margin of the rectal laceration was cartilaginous in feeling, and permitted the intrusion of the finger with difficulty.—September 13. The perinæal band with some fibres of the perinæum were divided, giving the patient much relief in emptying the bowels. On October 29th, the coccygeal attachments of the sphincter and levator ani were divided by subcutaneous incision, and by means of these operations the action of the bowels was unattended by pain, and a degree of comfort afforded to this poor patient more than she had experienced for many months previously. It was quite impossible to do more; for no amount of ingenuity could restore the perinæum, and repair the extensive loss of tissue which had taken place. The incisions removed the tension and pain of the parts, and allowed the edges of the fissures to approach nearer and to heal farther up.

Case XXVII.—*Rupture complete, six months' duration: Cure.*—A. M., admitted into St. Mary's Hospital October 7th, 1856. Was confined of her first child (a male), on March 30th last, by a midwife. On the following day she discovered she had lost control over her evacuations; this has persisted ever since. Oct. 8th. Usual operation performed. On 30th, she was discharged quite cured.

Case XXVIII.—*Rupture complete, eight years' duration: Cure.*—Mrs. T., æt. 35, the perinæum was torn during her confinement with her first child, eight years ago; the forceps having been employed; but that the laceration was extended at the birth of her second child. The perinæum and sphincter were torn through, and the control over the sphincter ani lost.—Oct. 9th, 1856. This lady lived at Birkenhead, and I performed the operation there, and at this date she had advanced to the second month of pregnancy. On the 11th, Dr. Walker, her usual medical attendant, removed the deep sutures. The bowels were moved on the 25th; and on the 20th of November she was reported as perfectly cured.

She has since been twice pregnant, and been delivered at the full term without any injury to the restored perinæum.

Case XXIX.—*Rupture complete, twenty-one years' duration: Second operation: Cure.*—L. B., æt. 40, admitted into Boynton ward, St. Mary's Hospital, on October 21st, 1856. Has had eleven children; was confined of her first twenty-one years ago, after a tedious labour, and has never had proper control over the rectum since. Each successive labour made matters worse.—Oct. 22. Performed the usual operation. 24. Fever and diarrhœa came on, which necessitated the removal of all the sutures, and materially retarded union of the parts. However, after many days' diarrhœa, she sufficiently recovered to leave the hospital, having regained partial power over the evacuations, and having the fissure partially closed. However, when the bowels were relaxed, the fluid fæcal matter escaped, some of it through the rectum into the vagina.

January 13th, 1857. She was re-admitted into the hospital, and on the 16th, the operation was performed *de novo*. All went on well, and on the 21st of February she was discharged quite cured.

It turned out on inquiry that she had suffered with diarrhœa for four months previously to her first admission and the first operation.

Case XXX.—*Rupture complete: Cure.*—Mrs. D., æt. 30, came from Baltimore, in the United States, and consulted me on account of suffering from a completely lacerated perinæum, with its usual consequence, the loss of power to retain the fæces. The accident happened during her fifth confinement, when, as the head of the child became impacted, the forceps were resorted to, and rupture took place during the passage of the head. She was operated upon for this lesion by Dr. Buckle, and all went on well until the bowels were moved, when the recently adherent parts gave way.—On 20th of November, 1856, I operated, and on the 16th of December she passed from my care quite cured, and proceeded to make a tour on the Continent. On her return to London, for a few days before returning home, I saw this lady, and she complained of occasionally suffering from inability to control the bowels when very relaxed; this, I assured her, time would completely cure.

Case XXXI.—*Rupture almost complete, eight years' duration: Cure.*—Mrs. P., æt. 41, mother of eleven children; all her labours severe owing to the size of the children. During her eighth labour the perinæum gave way at the moment of the passage of the head over it. Prolapsus uteri supervened and added to her sufferings. The laceration of the perinæum took place eight years ago; but it did not pass through the sphincter. The usual operation performed on the 8th of December, 1856, and resulted in complete restoration of the perinæum by the 24th of the same month, the general health also greatly improved. I had the benefit of the assistance, during the operation, of Mr. Hutchinson, of Oxford-street, and of Mr. Philip Harper.

Case XXXII.—*Rupture complete, four years' duration: Cure.*—Mrs. M. S., æt. 25, came under my care in March, 1857, at Sir C. Locock's recommendation, who stated it was one of the worst cases he had seen. Four years before, she was delivered, by the aid of forceps, of her first child, after a tedious labour. Two years after, she had a second child, but ever since the birth of the first, suffered from a rupture of the perinæum, which deprived her of proper control over the action of the bowels, and indirectly seriously affected her health.—On March 21st I operated, the patient being put under the influence of chloroform. Removed the deep sutures on the evening of the 23rd, and the superficial on the 26th. On the 2nd April, when the bowels were suffered to act, a small recto-vaginal fissure was discovered, but this was perfectly healed up in another week by the daily application of acetum lyttæ. From this time her recovery advanced, and she regained good health, and was once again enabled to enjoy horse-exercise, which she had not been since her first confinement.

Sir Charles Locock examined the patient, and found the integrity of the perinæum restored in the most perfect manner.

In August, 1860, this lady was delivered at 7½ months, by the advice of Sir C. Locock, by Dr. Greame, who wrote me subsequently, in answer to my inquiry, that so perfect was the perinæum, and the absence of all traces of previous laceration, that he felt unable to credit the assertion of the patient that she had ever been so seriously injured as she stated. Moreover, he added, the perinæum continued quite uninjured throughout

the labour, although no special precaution was taken to prevent injury. To quote Dr. Greame's own words from his letter, "I could not discover traces of either the original damage you mention or the result of an operation," and "during delivery no great pains were necessary to prevent injury."

I have since heard, from the lady herself, that she is in all respects as well now as before her last confinement.

Case XXXIII.—*Rupture complete: Failure of first operation: Success of second.*—S. Ll., æt. 28, admitted into St. Mary's Hospital in May, 1857. The perinæum was completely ruptured at the time of her first confinement. Three months ago she was operated upon, but an attack of severe neuralgia with fever came on afterwards, and compelled the removal of the sutures. The consequence was an incomplete restoration of the perinæum and recto-vaginal septum; I therefore, on May 13th, 1857, passed a bistoury, and divided the imperfect membranous septum between the rectum and vagina, and thereupon performed the ordinary operation, omitting, however, to divide the sphincter ani so deeply as usual. The edges were very carefully pared to remove all condensed, cicatrized tissue, as such does not heal satisfactorily. The deep sutures were removed on the 15th, and the superficial on the 19th May. At the end of June the parts were restored. She had a feeble constitution, and the reparative process was less active than usual.

Case XXXIV.—*Rupture complete: Duration four years: Cure.*—M. H., æt. 27, admitted into St. Mary's Hospital July 15, 1857, was delivered of her first child in November, 1853, by a midwife, who hastened the labour, and dragged at the child without waiting for "pains!" In 1855 she was confined with a second child. Ever since her first labour she lost control over the bowels, and, when examined, the perinæum was found torn completely through the sphincter. The operation for restoring the ruptured perinæum was performed on the 1st of July; the deep sutures removed on the 3rd; but the superficial ones were let remain until the 20th, as the parts were rather unhealthy, and she required to be sustained by bark and wine. On the 26th of August, she was discharged with a sound perinæum, and quite well in every respect.

Case XXXV.—*Rupture complete: Duration thirty years: Cure.*—A. P., æt. 55, admitted into St. Mary's Hospital October 15, 1857. The perinæum was ruptured thirty years since, in her first confinement, and she has continued to suffer from entire want of control over the evacuations, rendering her life perfectly miserable.—On the 21st of the month she was operated upon; the deep sutures were removed on the 24th, and the superficial on the 30th; and she rapidly recovered, with complete power over the restored sphincter, and a good, firm perinæum. She was discharged cured on the 21st of November.

Case XXXVI.—*Rupture complete: Duration ten years: Cure.*—Mrs. K., æt. 40, sent me by Sir Charles Locock. The perinæum gave way on the birth of her first child, after a tedious labour, ten years ago. She has since had four children, but from the time of the accident has had but slight control over the bowel; occasionally, when relaxed, none at all. She has also suffered much from partial prolapse of the womb, leucorrhœa, and profuse menstruation. The sphincter was half

destroyed, and the recto-vaginal septum torn to the extent of two inches, in a triangular form. The mucous membrane of the bowel was very lax, and lapped much over the torn edges. This state of things rendered it doubtful if a complete restoration of the parts could be effected by one operation.

On Nov. 3rd, 1857, I therefore determined to repair the torn septum first, and with this object carefully paired the edges of the fissure, at the same time separating the mucous membrane slightly, so as to increase the raw surface, and then introducing three hair-lip pins at short intervals, brought the edges together by silk twisted over the pins in figure-of-8 form. Nov. 6th. I carefully withdrew the needles. There was slight bleeding, but the parts appeared united. All went on well until the bowels were moved, when the adhesions gave way along a great part of the fissure. As the menstrual period was at hand, I determined to defer operating until that had passed; but I took the opportunity to pass a ligature around a large mass of relaxed mucous membrane. This much facilitated the subsequent operation, which was undertaken on the 24th Nov. I pared the edges, and denuded the mucous surface of the sides of the vagina and the surface of the recto-vaginal septum, carrying the former farther back than usual on account of the extent of the fissure. Besides the two deep sutures usually inserted, I passed a third through the mucous membrane of the septum, and fastened it to the posterior of the two others. By this means, when the deep sutures were tied, support was given to the denuded portion of the recto-vaginal septum, and an exact apposition obviating the lax mucous membrane falling between the approximated parts. I divided the sphincter deeply. On the evening of the 26th, the deep sutures were removed. Solid opium produced sickness in this case, and I substituted for it laudanum and chloric ether. The patient being of a weak constitution, and the parts flabby and rather bloodless, she was allowed extra diet, and a bottle of wine in the twenty-four hours. She progressed satisfactorily, but a small aperture remained between the vagina and rectum, covered by a piece of mucous membrane, which acted as a sort of valve. This opening was treated with acetum lyttæ, and became closed so much that nothing passed through it except a little flatus and thin fluid matter, when the bowels were relaxed. The general health of this lady improved very much afterwards; and she wrote me, several months after her return home, that she was scarcely aware of the presence of any opening, and did not suffer the slightest inconvenience from it.

This was one of the worst cases I have ever met with, owing to the great depth and width of the fissure in the recto-vaginal septum, and the loose, relaxed state of the mucous membrane around.

1859. I have frequently heard from this lady, and she states that she has continued quite well ever since, and is strong and able to take long walks.

Case XXXVII.—*Rupture complete of perinæum, extending into the rectum: Duration ten years: Cure.*—Mrs. B., æt. 40, brought to me by Mr. Ellis, of Sloane-street, at the recommendation of Dr. Henry Bennett. The forceps were used in her first confinement, ten years ago, and the perinæum ruptured. She has had four children subsequently, but has been the victim of frequent uterine disorder, chiefly ulceration and enlargement of the os uteri. She also has never had perfect control over the rectum for the whole eighteen years; the fæces frequently coming away involuntarily. Not only was the perinæum torn through, but the rent, moreover, extended an inch up the rectum.—On Nov. 4th, 1857, I

operated after the usual manner, paring the parts, however, much more deeply, on account of the extent of the fissure. The deep sutures removed on the 6th; and as an erysipelatous condition appeared on the next day, nitrate of silver was rubbed over the parts, and wine with a mixture of nitric acid and bark given frequently. On the 11th, the superficial sutures were removed, and union was advancing favourably. 26th. The perinæum firm, and the power over the sphincter recovered. Dr. H. Bennett examined the parts, and was very much gratified at the success which had attended the operation. Shortly afterwards she returned to her home in North Wales in excellent health, and able again to enjoy walking exercise after ten years' inability to do so, and pretty constant confinement to the house and in the recumbent posture. This case indicates, like many others, the dependence of uterine lesion upon ruptured perinæum, and the necessity of healing the latter before attempting or hoping for the cure of the former. This lady had not been treated by Dr. Bennett for the uterine derangements, but she had for many years been in the hands of another London physician, often for several months at a time, the rupture of the perinæum being overlooked for a long period, and the treatment, therefore, directed to the uterine symptoms, and the patient much tormented by caustic applications to the os uteri. At length the assistant, who applied leeches, discovered the injury; and she subsequently placed herself under the care of Dr. Bennett, who referred her to me.

Case XXXVIII.—*Rupture almost complete: Duration two years: Cure.*—S. C., æt. 42, admitted into St. Mary's Hospital Nov. 23, 1857. Has had ten children, the last of which was born two years ago, when the perinæum was ruptured. Has since suffered from incomplete prolapsus uteri, rendering it incumbent upon her to lie down much. When the bowels are relaxed she is unable to retain the fæces. The perinæum was found torn through, and also the superficial fibres of the sphincter. The uterus almost protruded.—Nov. 25. The usual operation was performed: on the 28th the deep sutures were removed, and on Dec. 5th the superficial. Dec. 7. Discharged, with the perineum perfectly restored, and relieved from the prolapse of the womb.

Case XXXIX.—*Rupture complete, with laceration of the recto-vaginal septum: Prolapse of rectum: Duration thirteen years: Cure.*—C. R., æt. 42, admitted into St. Mary's Hospital March, 1858. She has had three children, the first of which was delivered by craniotomy; the second by forceps; and the last, thirteen years ago, the presentation being abnormal, required to be turned. A few days after this last confinement she discovered the injury, but, although enduring so much misery, she never mentioned it to any medical man until she came under the care of Mr. Spencer Wells, who recommended her to me. On examination, not only was the perinæum and sphincter found torn completely through, but the recto-vaginal septum was lacerated to a great extent; and, to add to her sufferings, the rectum was much prolapsed.

March 8th. The patient being placed under the influence of chloroform, I tied the prolapsed bowel, by passing a needle through three several parts, armed with a double ligature, and carefully tying every portion of the prolapsed coats. She went on very well until the 15th, when severe gastro-enteric irritation, with diarrhœa, supervened, and after the more urgent symptoms were overcome, she was sent home to recruit her health.

May 8th. Re-admitted in good health. The perinæal injury was now taken in hand, and operated upon. In applying the sutures, it was found necessary to draw the deep posterior sutures more tightly than usual, in order to obtain a complete closure of the recto-vaginal septum. Œdema resulted from this very shortly, but was soon subdued by a few punctures. Opium was given as usual, and the catheter introduced and left in the bladder, having a bag suspended to it to catch the urine; as the pulse was feeble, 4 oz. of port wine were ordered daily.

After this date nothing special occurred, and on June 9th she went out of the hospital quite cured; having perfect control over the bowel, and being relieved from all uterine discomfort; restored to a state of health and activity to which she had been a stranger for thirteen years.

Case XL.—*Rupture complete: Duration seven weeks: Cure.*—E. E., æt. 33, admitted into St. Mary's Hospital March 13th, 1858. Seven weeks ago was delivered of her eighth child, with instruments, after having been in labour for thirty-one hours. A few days subsequently she found that her motions passed involuntarily. The perinæum was torn through, as well as the sphincter, and the recto-vaginal septum to the extent of one inch. The operation performed on March 17th: the deep sutures withdrawn on the 19th, and the superficial on the 24th. On the 26th, the bowels were opened, and the sphincter acted perfectly. April 16th. Perinæum quite restored. Discharged cured.

Case XLI.—*Rupture complete, with laceration of the rectum: Three operations: Cure.*—Mrs. L., æt. 38, came under my care on April 23rd, 1858. After a labour lasting three days she was delivered of a dead child, by Dr. Rigby, with the aid of the forceps. The patient being very fat, and the tissues lax, the perinæum gave way, and the laceration extended two inches up the rectum. The parts did not look very healthy, but I decided on operating. Dr. Rigby administered chloroform, and Messrs. Mawer and Musgrave assisted me. I dissected off the unhealthy granulations, and pared the edges of the fissure, and brought them together by sutures of silver wire. I did not, however, attempt to close the rent in the rectum, as the vagina was very sloughy. The fæces passed through the vagina on the second day. On the 25th, I removed the deep sutures. On the 30th, solid and copious evacuations were passed, which tore asunder the adhesions of the perinæum: still the parts granulated healthily. May 13th. I resumed the operation, and pared the edges of the long laceration up the rectum. This was rendered difficult by the bleeding which ensued, and by the rent in the recto-vaginal septum, which extended two inches. However, I succeeded in inserting four silver sutures through the fissure of the rectum, and fastened these, by means of shot, to a piece of lead two inches long and half an inch broad. In ten days' time I removed the plate, and found the union complete. On the 9th of June I operated for ruptured perinæum on the ordinary plan. A greater difficulty than usual was experienced on account of the depth of the laceration. On the 12th the deep sutures were removed, and the surfaces were found united throughout, except a very small place which constituted a recto-vaginal fissure. This was touched with acetum lyttæ, and soon closed up, and the patient was quite restored in every respect at the commencement of July. In November, 1859, she remained quite well, except in being subject to an irritable and loose state of the bowels.

In this case, had the operation been performed at once, how much misery the poor patient would have been spared!

CASE XLII.—*Rupture complete, two years' duration: Cure.*—Mrs. W., æt. 28, suffered rupture of the perinæum at the birth of her second child, two years since, and since then has not been able to restrain her motions, and has suffered much from vomiting. Her health, also, has much suffered. The rupture was complete, except that a mucous band was left crossing the fissure at the anterior half of the torn sphincter. Operation performed on March 25th, 1858; deep sutures removed on the 27th. She went on uninterruptedly well, but at the end of a fortnight, I found a fistulous opening through the perinæum into the vagina, but this gradually closed up by the application of acetum lyttæ. The perinæum was completely restored, and also the function of the sphincter.

CASE XLIII.—*Rupture complete, with laceration of the rectum: three days' duration: Two operations: Cure.*—Mrs. R., æt. 22, was delivered, after a tedious labour, by forceps, on June 30th, 1858. Two days afterwards she had no control over the action of the bowels, and on examination the perinæum was found torn through, together with the sphincter and the rectum to the extent of two inches. I proceeded to operate (as in Case XLI.), closing the rectal fissure with silver-wire sutures fixed to a leaden plate. On the tenth day this plate was removed, and the ordinary operation for ruptured perinæum carried out. In this I was assisted by Dr. Parkinson; Mr. Taylor, of Bocking; and Dr. Bozeman, of Montgomery, U.S. In a fortnight from this time she was convalescent, and had regained the normal control over the sphincter ani, and in six weeks from her delivery she was down stairs. The cure was rapid and complete in this instance, notwithstanding the considerable laceration of the rectum, and a copious lochial discharge going on.

Dr. Hodges, of Rochford, has since attended this lady in a confinement, at the full term, and no damage to the perinæum occurred.

CASE XLIV.—*Rupture complete: Cure.*—W. B., æt. 41, admitted into the "London Surgical Home" on October 1st, 1858. Has had six children, and ever since the birth of the first has suffered from much dragging of the uterus and debility. She hurt herself about nine months ago by lifting a heavy weight, and afterwards had severe flooding. I found the perinæum torn through the sphincter, leaving, however, a few fibres of that muscle. Oct. 4. The usual operation performed; iron wire sutures being used instead of twine. At the end of a month she was discharged with a firm and sound perinæum, and perfect control over the alvine evacuations.

CASE XLV.—*Rupture complete: Cure.*—H. B., æt. 23, admitted into St. Mary's Hospital on October 2nd, 1858, was delivered of a dead child, by forceps, after being in labour for three days, a midwife having attended her. When she got about she found she had very imperfect control over the rectum, and suffered much from bearing down of the uterus. The perinæum was found lacerated, and two-thirds of the sphincter torn across. Oct. 6th. The usual operation was performed; wire sutures being employed in place of twine. On Nov. 6th, she was discharged perfectly cured.

CASE XLVI.—*Rupture complete: Cure.*—S. P., æt. 31, admitted into

St. Mary's Hospital on Nov. 26th, 1858. Has eight children. Her last labour lasted two days, and was terminated by instruments. Soon after, she discovered her inability to control the evacuations. On examination, I found the perinæum torn through, and the anterior fibres of the sphincter destroyed. A mucous band assisted in completing the circle around the anal orifice. Dec. 1st. Performed the usual operation. Perfect recovery was effected by the end of the month.

Case XLVII.—*Rupture complete, one month's duration: Cure.*—Mrs. B., æt. 30, admitted into the "London Surgical Home" on December 27th, 1858. She had her perinæum ruptured with her first child, and her case has already appeared (*vide* Case XXIV.). The previous operation took place in September, 1856, and restored the integrity of the perinæum. Taking into consideration her general figure, and the extremely large size of the head of her first child, I recommended her, when she passed from my hands, to have labour induced at the seventh month, instead of going her full time. This advice, however, she did not follow, and on her next confinement, in November, 1858, with a large male child, the perinæum gave way its whole length, so that the recto-vaginal septum was lacerated more deeply than usual.

Dec. 31st, 1858. I performed my usual operation, but owing to the depth of the fissure, had much difficulty in getting the edges into apposition. Healing, however, proceeded very favourably except at a small spot, where it was imperfect, and left a recto-vaginal fistula. This little aperture, however, was of no further annoyance than that it allowed the occasional escape of a little flatus. The sphincter was quite restored to its function.

Case XLVIII.—*Rupture complete, five weeks' duration: Cure.*—M. M., admitted into the "London Surgical Home" on January 21st, 1859. She was delivered of her first child five weeks previously, after three days' labour, and with the aid of instruments. When Mr. Godfrey, of Herne Bay, saw her, he found one arm through the anus and the vertex presenting. The rupture of the perinæum was therefore inevitable, and the laceration extended into the rectum. January 22nd. Performed the usual operation. The parts afterwards looked flabby and unhealthy, but under the use of opium, of nitric acid and bark, and good diet with wine, the granulations became healthy, and she was quite cured at the end of a month. This patient was subsequently delivered by Mr. Godfrey, when the perinæum, which, as that gentleman described it, was like soaked pasteboard and perfectly undilatable, gave way through its entire length. This patient should, when the perinæum is again restored, be delivered in any future labour at the end of the seventh month.

Case XLIX.—*Rupture complete: Cure.*—C. E., æt. 26, admitted into the "London Surgical Home," March, 1859. The perinæum was ruptured during her first labour, which lasted two and a half days, and was terminated by instruments. At the commencement she was attended by a midwife. The power over the sphincter was lost, and incontinence of urine also supervened. Five weeks ago, was confined of a second child. I found the rupture of the perinæum extended through the sphincter, but only a short distance into the bowel. On March 17th, I performed the usual operation. All went on well until April 4th, when she had an attack

of rheumatic fever; this yielded to treatment, but retarded her convalescence from the operation.

Case L.—*Rupture incomplete—Rectocele: Cure.*—Mrs. D. The perinæum was ruptured up to, but not through the sphincter; a skin union had taken place for about an inch in front of the anus, so that on a casual examination her perinæum might appear entire. A tumour also was felt pressing into the vagina, and partially protruding through the labia, which proved to be the rectum pressed forwards. She had constant bearing down, and difficult defæcation. The os uteri was enlarged and ulcerated. March 18th, 1859. The usual operation was carried out; she progressed very satisfactorily, and at the end of a month was quite restored.

Case LI.—*Rupture complete, eight years' duration: Pyæmia: Death.*—Mrs. S., æt. 28. In her first confinement, eight and a half years since, the perinæum was torn through the sphincter. No instruments were used. She has had three children since. The alvine evacuations escape involuntarily when at all fluid. April 12th, 1859. I performed my usual operation. Among others present were Messrs. Turner, of Brighton, and Wilkins, of Norwood. On the 13th, appearances of sloughing showed themselves, and great restlessness. I now learned that she had been in the habit, for many years, of taking laudanum to keep the bowels quiet, and so prevent involuntary alvine discharges. This explained the failure of the two grains of opium I administered after the operation, as well as of the one-grain dose repeated on three occasions, to produce any effect. The next day the sloughing was extending, and I removed the deep sutures. To sum up the details in as few words as possible, the sloughs, which had formed along the cut edges of the perinæum, separated; and under a tonic and generous regimen, granulations sprang up, and bid fair to close up the laceration. However, the powers of the patient proved unequal to the task, and no considerable progress in restoration was made. Three weeks after the operation she began to complain of great pain in the right shoulder-joint, which became very tender and much swollen. The tongue was dry and red, and much restlessness was present, with well-marked rigors. A few days subsequently the left hip became similarly affected, then the knee, and afterwards the right hip. Six weeks after the operation (with the concurrence and assistance of Sir C. Locock, and Mr. Fergusson, each of whom daily saw the patient with me), I opened the abscess which had formed in the hip, and let out two pints of unhealthy pus. The other hip required the same treatment a few days afterwards, and from both about a pint of unhealthy pus was discharged daily. Afterwards, the pus was replaced by hæmorrhage from both hips, which proved intractable, and induced fatal exhaustion seven weeks after the operation.

Had I known that this patient had been accustomed to the daily use of laudanum for many years, I should have delayed operating for several weeks at least, and have placed her under medical treatment to improve her health and constitution. Had this been done, I feel confident she would not have died; and much blame must attach to the friends of the patient for withholding that information which might have saved her life. I need not say that in every subsequent case I have made it my business to inquire minutely into the habits of patients, and particularly with reference to this habit of opium-taking.

Case LII. *Rupture complete: Cure.*—Mrs. M., brought under my care

by Mr. Warwick, of Southwell, at the recommendation of Sir C. Locock. The perinæum was lacerated eight years ago, but not by instruments; and since then she has had no control over the rectum when there has been looseness of the bowels. The rupture had extended through the sphincter, but a muco-fibrous band had stretched across it, and completed the circle of the anus. May 11th, 1859. The usual operation was performed, and within a fortnight perfect union had taken place, with perfect control even over the flatus. She has continued quite well ever since.

Case LIII.—*Rupture complete, eleven years' duration: Cure.*—Mrs. H., æt. 35, came under my care at the recommendation of Sir C. Locock and Mr. Harvey. Eleven years ago, after a long labour with her first child, the child and placenta were expelled simultaneously. Since that period she has had no control over her bowels when relaxed, and seldom over the flatus: has had six children since. The rupture of the perinæum involved the destruction of half the sphincter. There was great retraction of the anus. June 21st, 1859. Performed my usual operation. Mr. Smith, of Redditch (the patient's ordinary attendant), Mr. Evans, of Torquay, and Mr. Harvey, with others, being present. The case proceeded without an unfavourable symptom, and a complete restoration of the perinæum was accomplished.

In July, 1860, she was again confined. Mr. Smith, of Redditch, attended her. The labour passed off very well, without any injury to the restored perinæum; a circumstance which I have since been able to confirm by an examination of the part.

Case LIV.—*Rupture complete, five years' duration: Cure.*—Mrs. N., of Birkenhead, was recommended to me by Mr. Godden; she is 27 years old, and mother of three children. Five years ago she was confined of her first child: before assistance was procured the perinæum was lacerated, and ever since she has been almost constantly confined to the sofa, unable to take her place at table from having no power over the action of the bowels. Her health has also suffered much, and she is thin and depressed in spirits. Mr. Godden, Dr. G. Walker, and two other surgeons of Birkenhead, were present at the operation, which took place on September 7th, 1859. The deep sutures were removed on the evening of the second day: the bowels opened on the fourteenth day. After the bowels were relieved she could hold the injection for some time, and in a month she regained almost complete power over the sphincter. Her health and strength improved wonderfully, and she gained in flesh, "and appeared (as Mr. Godden reported to me in December) better than he had ever seen her before."

She subsequently complained of a little flatus escaping into the vagina, and, on a careful examination, I found a very small fistulous aperture covered by a fold of mucous membrane; this, after denuding the edges, I closed by a single silver suture, and completely relieved her from this small source of discomfort.

Case LV.—*Rupture complete: Duration one year; Cure.*—C. A., æt. 24, admitted into the "London Surgical Home" October 24th, 1859. Had a tedious labour last November, ending with rupture of the perinæum. No instruments were used. There has since been much bearing down of the uterus and a want of power over the escape of the alvine evacuations. The laceration extended completely through the perinæum, and a short

distance into the rectum. October 27th. Usual operation performed. Nov. 3rd. Union had taken place throughout the whole length of the perinæum; and, at the end of the month, she was discharged completely cured.

CASE LVI.—*Rupture complete: Pyæmia: Death.*—F. G., æt. 21, admitted into the "London Surgical Home" Nov. 1859; a tedious labour of fourteen hours with her first child was terminated by the use of instruments, and the perinæum gave way. She was operated upon in the country three weeks subsequently, but with no material benefit. The perinæum proved to be torn through, with the sphincter also, and the usual concomitant, the loss of power over the bowels, had followed. Nov. 10th. Usual operation performed. 16th. Was slightly delirious during the night; the countenance became anxious, and the pulse increased in rapidity. The wine and nourishment were increased, and opium, ether, ammonia, and bark, were administered. On the 18th, has been very sleepless; pulse weak, intermitting, and scarcely to be counted; countenance very anxious; delirium and restlessness. The parts operated on are healing well and firmly. 19th. Got lower: a typhoid state appeared, and she sank on the morning of the 20th.—She was in a weak state when admitted, having just weaned a child. In another such case I should delay the operation for some weeks, to give time to improve the general health and strength, and until all traces of milk had left the breasts. In the case just given, the patient had come from an agueish district of Kent.

CASE LVII.—*Rupture complete, four months' duration: Cure: Second operation immediately after the accident.*—Mrs. J., æt. 27. The uterine contractions being too weak, her first labour was prolonged for sixty hours, when turning was practised; but as the arms were being brought through the os externum, the perinæum gave way through its entire length, the laceration, moreover, extending through the sphincter into the rectum. This happened in December, 1859, and involved the usual consequences, loss of sphincter control, &c. April 7th, 1860. The usual operation was proceeded with satisfactorily. The deep sutures were removed at the end of fifty-six hours; the bowels moved on the 20th, and the sphincter power was found to be regained. She soon after became quite restored.

At the time of the operation she was two months advanced in pregnancy; and on the 26th of November following, labour came on at 12 P.M., and was over at 9 A.M. The smallness of the pelvic outlet, and the circumstance of the funis being wound around the child, conspired to prevent the passage of the child beneath the pubic arch, and the perinæum became torn as far back as the sphincter, not through it. I immediately introduced two deep and two superficial sutures: and having thus brought the parts into accurate apposition, enjoined perfect rest, and carried out the usual after-treatment. The sutures were removed on the second day, and the parts found entirely united. This was one of those cases where no child of the ordinary size could be born without involving laceration of the perinæum; therefore no blame could attach to the surgeon who attended her in her first confinement, for then precisely the same state of things must have existed.

CASE LVIII.—*Rupture almost complete, two years' duration: Cure.*—

Mrs. B., æt. 37, was placed under my care by Mr. George Reece. In her second labour, in June, 1858, delivery took place before the arrival of her medical attendant; the perinæum was ruptured, and she was deprived of the power of retaining the alvine evacuations except when these were constipated. The laceration had passed through the whole length of the perinæum, and partly through the sphincter.

This patient came under my care in May, 1860, when I carried out my usual operation with complete success. On the third day following, I removed the sutures, and the union of the parts proceeded very favourably. She soon recovered, with a sound perinæum and complete sphincter power. I saw her some months afterwards, and was glad to learn that she remained quite well in every respect.

Case LIX.—*Rupture complete: Cure.*—E. D., admitted into the "London Surgical Home" June 14th, 1860. Since her first confinement, five years ago, which lasted ten hours, but was suddenly terminated, and caused laceration of the perinæum, she has never been able to control the alvine evacuations. Two years afterwards, however, she had a second child. On examination, the rupture was found to have extended through the sphincter.

June 21st. The ordinary operation was performed. 23rd. Deep sutures removed. The patient progressed favourably, and went out, quite cured, on the 21st of July.

Case LX.—*Rupture complete: Cure.*—A. B., æt. 42, admitted into the "London Surgical Home" June 16th, 1860. Has had ten children. In her last labour, five years ago, she was attended by a midwife: the perinæum was lacerated, and the power over the sphincter ani lost to a considerable degree. The laceration I found to be complete.

June 21st. I performed my usual operation; on the 23rd the deep sutures were removed. The healing advanced most kindly, and on the 28th of July she was discharged completely cured.

Case LXI.—*Rupture complete: Cure.*—Mrs. L., æt. 26, sent to me by Mr. Priest, of Waltham Abbey. Her fourth labour was very rapid, and the child propelled through the external parts into the chamber utensil on which she was sitting, before any assistance could be obtained. Sixteen months from the date of this occurrence she came under my care for operation, being sadly distressed by the laceration, and its consequences in depriving her of control over the alvine evacuations. The usual operation was carried out on July 15th, 1860. On the third day afterwards the deep sutures were removed. Union took place very favourably, and she recovered within a month from the date of the operation, with a perfectly restored perinæum and sphincter power. In November, 1860, I had the opportunity to ascertain that the restored parts were still perfect.

Case LXII.—*Rupture complete, two years and a half duration: Result incomplete.*—Mrs. R., æt. 33, was confined of her first child in February, 1858, with a breech presentation. After her labour she found she could not retain the fæces, but some improvement afterwards took place in this respect, dependent on a partial adhesion of the sides of the divided sphincter by means of a muco-fibrous band. On the 6th of August, 1860, at 5 A.M., she was delivered, by the aid of forceps, of another child, a male; this band gave way, and the rent extended itself an inch up the

rectum. At half-past 3 on the same day, I operated in my customary manner, assisted by my brother, Mr. George Brown, and Mr. Harper. On the 11th, the deep sutures were removed. The perinæum did not heal up perfectly, but a very small aperture was left about its middle, having no communication, however, with the rectum. This will be readily cured when she has done suckling, against which time I am waiting.

Case LXIII.—*Rupture complete, with vesico-vaginal fistula : Cure.*—E. B., æt. 41, admitted into the "London Surgical Home" July 30th, 1860. Has had thirteen children. Her last labour, on the 1st of April last, was prolonged fifty-two hours, and was terminated by craniotomy. She was very ill after the confinement, suffered with diarrhœa, and discovered that the fluid evacuations escaped involuntarily. The same thing has happened ever since, when the bowels have been loose. An examination showed the perinæum to be ruptured through the sphincter, and that the laceration extended a short distance into the bowel. There was also a large vesico-vaginal fistula. The patient was in so weak a state that I kept her for several weeks under medical treatment, and gave her steel and bark to improve her health. I likewise made the closure of the vesico-vaginal opening a preliminary affair. Being now in very fair health, I operated on the 18th of October in the usual fashion. On the 20th, removed the deep sutures. On the 27th, the bowels were moved by half an ounce of castor oil, and she found she could control the evacuations. Nov. 12th. Left the Home quite cured.

Case LXIV.—*Rupture complete : Immediate operation : Cure.*—Mrs. G. I was sent for by the husband of this lady, a medical man residing in St. John's Wood. She had just been delivered of her first child. The uterus had refilled from internal hæmorrhage, and the perinæum was completely ruptured. I immediately put in two deep quill, then two interrupted sutures, and divided the sphincter. One grain of opium was given immediately ; to be repeated every six hours.

The laceration had taken place by the onset of powerful uterine contractions, after previous inefficient ones, and during the temporary absence of the surgeon. The cord was twisted around the neck of the child, but it was not till the shoulders passed that the perinæum gave way.

Dec. 30. Has passed a good night. Catheter used every six or seven hours. To take beef-tea and milk. Jan. 1st. Quill sutures removed; strong adhesion of united surfaces. 4th. Opium discontinued ; a dose of castor oil this morning, followed by an enema, relieved the bowels without injury to the restored parts. 5th. Is convalescent : sphincter power complete.

I subsequently delivered this lady of a child at the full period, and no rupture of the perinæum took place, and she has ever since had a perfect control over the sphincter.

Case LXV.—*Rupture nearly complete from abnormal condition of perinæum : Immediate operation : Subsequent delivery : Cure.*—Mrs. D., æt. 35, was delivered of her first child, after forty-eight hours' continued labour, the perinæum all the while having the character of soaked pasteboard, and being unyielding. No amount of grease and fomentation availed anything ; and, during the escape of the head, the perinæum gave way in its entire length, and with it also the superficial fibres of the sphincter ani.

On the completion of delivery, I at once applied sutures, but did *not* divide the sphincter. The perinæal tissues united superficially, but some

of the untorn deep fibres of the sphincter kept up a constant dragging, and a tendency to retraction of the united parts, the consequence of which was a very prolonged cure, and it was not till after two months that the perinæum was firmly and entirely restored.

August 27th, 1852, I was summoned to this patient in labour at 2 A.M., and found the os uteri the size of a shilling, thin, but dilatable, and the bag of waters protruding. The perinæum was very thick and unyielding. I determined to wait, and to make an examination but seldom.

At 3 A.M. the bag presented at the os externum; at a quarter-past, the waters escaped, and the head of the child then descended on the perinæum. A crescent-like band was now felt stretched across the vagina in the position of the constrictor vaginæ, very unyielding and tense, like a catgut cord, resisting the advance of the head. It was clear, therefore, that unless great care was used, and the opposition removed, the head would tear through the perinæum between this transverse band and the sphincter ani, especially as the pains now came on forcibly, I therefore gave chloroform: this quickly relaxed the band, and then gradually tearing through its extremities with my forefinger, the necessary dilatation of the canal was obtained. Still keeping the patient under the action of chloroform, I pressed with my left hand against the head, so as to direct it downwards and forwards, whilst, by means of the two forefingers of my right hand underneath, the head was prevented from pushing against and stretching the transverse band. The result of these proceedings was most satisfactory, for by half-past four the head passed, and afterwards the shoulders and body without the slightest laceration, though the child—a male—was above the average size.

This case affords a good illustration of the fifth proposition.

CASE LXVI.—*Complete rupture of the perinæum: Immediate operation: Subsequent delivery: Cure.*—Mrs. V., æt. 29, came under my care in her first confinement, in October, 1851. She had been in strong labour for twenty-four hours, and the practitioner in charge of the case had just previously to my arrival used the forceps, and the perinæum and the superficial fibres of the sphincter ani were ruptured.

I at once proceeded with the operation to bring together the edges of the fissure by the quill sutures: but having with me no bougies for the purpose, I was compelled to employ instead pieces of lint tightly rolled up. I did not in this instance divide the sphincter, which omission I afterwards regretted, as union was much slower than it would have been if I had done so. However, the case did perfectly well, and a sound perinæum was restored.

On November 12th, 1852, I attended this lady in her second confinement. The labour was natural; the bag of waters remained entire until the complete expansion of the os uteri; there was a copious secretion to lubricate the parts, and the perinæum yielding kindly, the child was safely born without the least laceration.

This case again, therefore satisfactorily confirms the second and third propositions.

CASE LXVII.—*Rupture nearly complete: Immediate operation: Cure.*—J. R., æt. 30. After being in labour for forty-eight hours, the forceps were applied, but before traction was made, a sudden pain expelled the child, causing the perinæum to give way before it. This occurred on August 24th, 1856, when, as I was out of town, my friend and assistant, Mr. Philip Harper went in my stead, and performed the usual operation at three

o'clock, six hours after the accident. The patient went on very well, and on the 30th she was quite cured.

CASE LXVIII.—*Rupture complete: Immediate operation: Cure.*—Mrs. L. N. Labour commenced, with her first child, on the 15th of January, 1860, but she did not send for medical aid until the 17th; when the application of the forceps was found necessary. During the withdrawal of the head the perinæum was torn through the sphincter ani and as much as half an inch up the rectum.

Having been called in eighteen hours after the accident, I operated in the usual manner, using silver wire, however, for both sets of sutures. On the 22nd January I removed the deep sutures, and from this date everything went on so favourably, as to offer nothing for particular remark. The restoration of the sphincter and perinæum was completed within a month from the date of the operation.

CASE LXIX.—*Rupture complete: Operation on fifth day after the accident: Parts unhealthy: Cure.*—Mrs. M., æt. 38, on June 7th, 1855, came under my care at the recommendation of Dr. Jones, of Manchester-square. She had a difficult labour; the forceps were applied, a sudden pain came on and drove the child and instruments through the external parts, causing laceration. This happened before Dr. Jones saw her. On examining her five days after the injury, I found the parts œdematous and unhealthy, and the labia much swollen; the lochial discharge considerable, and the milk decreasing.

The patient was most anxious to have something done for her relief at once. I explained to her, that from her present state and the condition of the parts, there could be but small hope of success, and that should an operation be attempted, it would be unadvisable, in her weak state, to administer chloroform. I could not, therefore, recommend operative proceedings at present. Still I did not see cause for apprehending increased mischief from an operation, and as she still pressed it upon me I yielded, and proceeded forthwith, omitting, however, the inhalation of chloroform. The edges were pared, and two deep and three interrupted sutures introduced. Dr. Jones and Mr. Lawrence assisted me. On the 9th, the parts looked healthy, and the deep sutures were removed. She went on satisfactorily, and on the 15th the edges had completely united. On 22nd, the improvement in her general health was very marked, although she had continued to suckle her child; the bowels acted regularly, and she very shortly became quite convalescent.

CASE LXX.—*Rupture incomplete, of three years' standing, with fissure of the rectum: Cure.*—E. T., æt. 37, admitted into Boynton ward, St. Mary's Hospital, March 26th, 1852. At her first confinement, three years ago, the perinæum was ruptured by the sudden descent of the head, at the moment of its extrusion, in the absence of medical assistance. The tear did not go through the sphincter or recto-vaginal septum, and she therefore did not suffer from incontinence of her motions, but very much from procidentia uteri. The uterus not only partially projected from the vagina, but also constantly pressed on the rectum, and produced fissure of that bowel. These evils exerted an injurious effect on the general health of the patient, causing nervous depression and dyspepsia, besides the mere local inconvenience.

I first cured the fissure of the rectum, by dividing the sphincter through

the fissure itself. After the complete success of this step, I applied the usual remedies for the restoration of the health, and also for the procidentia uteri. With the latter I failed, on account of the defective perinæum, and accordingly determined to operate for its restoration.

April 7th. On this day I sutured the ruptured parts in the ordinary manner, and pursued the usual after-treatment,

On the 24th of the month she was discharged cured, having a sound perinæum, and no procidentia uteri. I have seen her frequently since, and ascertained the permanence of the benefit derived.

This case presented two or three interesting and instructive features. In the first place, the production of fissure of the rectum by the mechanical pressure of the uterus against it; in the second, the origin of the prolapse of the uterus from the absence of the perinæum,—the natural floor of the vagina, and support of the pelvic viscera against their necessary tendency to descend, and the cure of the displacement by renewal of the perinæum; in the third, the restoration of the bodily health, by attention to the mechanical causes of its decline.

Case LXXI.—*Rupture incomplete, five months' standing: Prolapsus uteri: Result.*—E. A., æt. 23, admitted July 2nd, 1852, into St. Mary's Hospital. She was confined with her first child nearly five months ago, after a labour lasting three days. No instruments were used, but the perinæum was ruptured: the sphincter ani, however, escaped injury. She complains of discomfort from the dragging of the uterus, which prolapses to some extent; and from its pressure on the rectum, the margins of the fissure are a good deal congested, and numerous condylomata are scattered over them. The operation in this instance was therefore called for to remove the prolapse of the uterus, and its ulterior injurious consequences.

July 7th. The opposed surfaces of mucous membrane were dissected off, and the edges brought together by quill sutures. The sphincter was divided on both sides. The after-treatment pursued was in accordance with the principles laid down. On the 12th of July a small central opening was discoverable in the centre of the united edges, but this quickly closed up after the application of tincture of lytta a few times, and on the 30th she was discharged cured. The division of the sphincter in a case of this sort I should not resort to at the present day.

Case LXXII.—*Incomplete rupture of perinæum: Operation immediately after the accident: Cure.*—Mrs. W., æt. 22, March, 1854. In labour with her first child. The head large; outlet small; perinæum unyielding, and the expulsive pains strong. The constrictor vaginæ suddenly gave way, and the perinæum was torn as far back as the sphincter ani, leaving that muscle intact. So soon as the placenta had escaped I applied one very deep interrupted suture, and followed the usual after-treatment.

After three days I removed the ligature, and found the union of the parts perfect. The subsequent progress of the case was very successful, and presented no circumstances worth recording.

Case LXXIII.—*Incomplete rupture: Vaginal rectocele, and prolapse of the uterus, nine years' duration: Cure.*—Mrs. F., æt. 24, was married when only fifteen, in India, and had the first child before she was sixteen years old. In the course of delivery the perinæum was much torn, and ever afterwards standing was attended with pain. Fourteen months after

the birth of a second child, the womb came down and protruded externally. It was replaced, and she was kept in the recumbent posture for some time. In the course of the following year (1846), she miscarried at the eighth month. In October, 1847, she was confined with another child, and a fourth was born in 1849. She had a miscarriage in 1850, and another in June, 1851.

She states that during each pregnancy something constantly protruded from the vagina (except when in the recumbent posture), the length of a finger, having a smooth surface, and feeling like a bladder.

The existence of this tumour, and the state of the perinæum and uterus, caused her so much trouble, annoyance, and pain, that she made the journey to England for further advice. For the last three or four years she had been almost constantly confined to the recumbent posture. By the kindness of Sir C. Locock she was referred to me.

On examination, I found incomplete rupture of the perinæum; prolapse of the vagina posteriorly, or rectocele; displacement of the uterus, so that the os was directed against the rectum, and the fundus tilted forward; moreover, unless supported by a pad and bandage, the vagina in its entire circumference prolapsed.

Notwithstanding this complication of complaints, I came to the conclusion, that by restoring the perinæum, and by contracting the dilated, relaxed vagina, the condition of the patient might be most materially relieved, if not entirely rectified.

On the 19th of January, 1854, I operated as usual for laceration of the perinæum when incomplete; rather more integument at the junction of the skin and mucous membrane was removed than usual, on account of the greatly relaxed state of the perinæum. The inclination to bleeding from the vagina was controlled by the insertion of a small piece of ice. The patient was placed on her side, the urine drawn off every three hours, and a grain of opium given every four hours.

Jan. 20th. There has been great irritability of the stomach, with repeated vomiting, and consequent prostration. A mustard poultice was placed on the stomach; an opium (gr. iij.) suppository introduced, and a teaspoonful of brandy and cold beef-tea ordered every hour. There was no tension of the parts operated on. 23rd. The suppository repeated every night; good nourishing diet prescribed; deep sutures removed; the parts looking well, and union by the first intention set up. 25th. Removed interrupted sutures. Union complete. The patient takes plenty of nourishment; is allowed wine and bitter ale. 29th. The bowels relieved for the first time. She has gained in flesh and strength considerably. 30th. The integrity of the parts quite restored; the ruptured perinæum united; the rectocele cured, and also the prolapsus uteri; and the patient can stand and walk with ease and comfort. One of my perinæal bandages to be worn for some months to sustain the newly-formed tissue.

Remarks.—This case illustrates the bad effects likely to ensue from neglecting to restore the perinæum, even when the rupture is but partial. The displacements of the uterus and vagina may be here attributed to it.

Case LXXIV.—*Rupture incomplete, four years' duration: Vaginal rectocele: Cure.*—Maria L., æt. 32, admitted in St. Mary's Hospital Jan. 6th, 1854. Has had two children; the last, three years ago. The perinæum was lacerated in her first confinement, four years since, after a most painful labour, lasting forty-eight hours. No instruments were used. The power to control the evacuations was retained, but she had almost constant

tenesmus and leucorrhœa, and her general health suffered. When standing or walking, a tumour projected through the vagina, which she concluded to be the womb; and she felt a fulness, with bearing-down pains. On examination, the perinæum was found lacerated as far back as the sphincter. A rounded reddish tumour projected between the labia, and proved to be the rectum bulging forward into the vagina, or a rectocele.—Jan. 11th. Operated upon in the usual way. Some œdema of the sutured parts occurred on the 13th, which was relieved by a few punctures, and the perinæum became quite closed up, and the rectocele removed at the end of the month.

Case LXXV.—*Rupture incomplete: Cure.*—L. F., æt. 20. Admitted into Boynton ward on October 12th, 1855. The rupture of the perinæum, which did not extend through the sphincter, occurred during her first labour, which lasted between three and four days. Prolapsus uteri soon after supervened. October 13th. Operation performed; on 16th, deep sutures removed; on 18th, the superficial. 21st. Bowels moved. January 13th, 1856. Discharged quite cured.

Case LXXVI.—*Rupture incomplete: Duration seventeen days: Cure.*—Mrs. G., æt. 24. Confined seventeen days since, after a tedious labour, with her first child. No instruments were used, but the child's head was large, and ruptured the perinæum when passing over it. March 16, 1858. The ordinary operation performed, but as the injury was so recent, the edges did not require paring, and I did not consider it necessary to divide the sphincter. Deep sutures removed on the 18th; the superficial on the 21st. At the end of the month, the perinæum was healed up, and quite restored.

Case LXXVII.—*Rupture incomplete: Vaginal rectocele, six months' duration: Cure.*—M. A. H., æt. 25, admitted into the "London Surgical Home" Nov., 1859, was delivered, by the aid of forceps, of her first child six months ago. Has experienced ever since much bearing down, inconvenience in moving about, and difficulty in defæcation. The sphincter ani was not torn through, but the rectum pressed forward into the vagina, and formed a pouch, in which the fæces accumulated. This rendered it necessary, when at stool, either to press back the pouch by the finger or to favour its evacuation by a change of position. Hence much annoyance, pain, and difficulty.

Nov. 10. Operation performed as usual, and union proceeded favourably, so that at the end of a month the patient left, recovered, able to relieve the bowels daily without difficulty, and with the bearing-down sensation removed.

Case LXXVIII.—*Rupture incomplete: Prolapsus uteri of some years' duration: Cure.*—M. M., æt. 49, admitted into the "London Surgical Home" Nov. 1859. Has had seven children and four miscarriages, and for some years has suffered from prolapse of the womb, which for the last three years has protruded externally, incapacitating her for her duties, and disabling her from moving about, except with the support of napkins applied so as to keep the uterus up. The perinæum is torn through, but not the sphincter.

Nov. 10. Usual operation. The only exception to the onward progress of the patient was the formation of a sore on the hip, two days after the

operation, which, together with her weak state of health, called for extra diet and tonics. The perinæum was quite restored, and with this the procidentia uteri was also cured.

CASE LXXIX.—*Rupture incomplete, thirty-six years' duration: Prolapse of the uterus and anus: two operations: Cure.*—E. P., æt. 65, admitted into the "London Surgical Home" on the 14th of November, 1859. After a severe labour, thirty-six years ago, the perinæum tore, and the womb prolapsed, and afterwards the rectum, which also became affected with hæmorrhoids, and added much to her distress. Two years ago the uterus protruded externally: her health suffered much, and she was incapacitated from pursuing her usual employments. The rupture of the perinæum had not extended through the sphincter. As her general health was so indifferent, she was placed under treatment before any operation was attempted.

Nov. 24th. The prolapsed bowel was tied at three places, and the external piles excised. This operation having succeeded, I proceeded to restore the ruptured perinæum, after my usual manner, on Dec. 15th, 1859. All went on well, and she was discharged on Jan. 18th, recovered from all her disorders.

Considering the duration of the injury, and the advanced age of the patient, success in this case was most gratifying.

CASE LXXX.—*Rupture incomplete, two years' duration: Cure.*—Mrs. K., admitted into the "London Surgical Home" May 14th, 1860. Has had five children. All her labours have been very tedious. Since the last, which happened two years ago, she has suffered very much from bearing down of the womb, and other pelvic derangements. Examination showed the perinæum to be ruptured up to the sphincter, but not through it. The uterus descended so far as to press through the external parts.

May 17th. Operation performed in the manner prescribed for this variety of laceration. 20th. Deep sutures removed; on the 23rd the superficial. June 14th. Went out perfectly cured.

CASE LXXXI.—*Ruptured perinæum, between the vaginal outlet and the anus, or perforation of the perinæum: Cure.*—Mrs. O., æt. 20. In her first confinement, the rigidity of the os externum was so great that the head rested against the perinæum, and, before instruments could be procured, it was forced through it, leaving both the vaginal and rectal sphincters intact. As the fissure did not promise to close up, I was sent for, a fortnight afterwards, on April 22nd, 1860, by Mr. Lawrence, of Wandsworth, and then found an opening large enough to admit the three fingers. Mr. Lawrence kindly aided me in this operation, along with my son, Mr. A. Boyer Brown. Having pared the edges, I introduced two deep interrupted sutures of iron wire, and, instead of dividing the rectum, I cut through the perinæal fourchette in front. The patient rapidly regained the integrity of the perinæum perfectly.

In this case, the accident arose from the extreme rigidity of the fourchette and vulva; and it is advisable, in similar instances, to relieve the rigid tissue by an incision into it, to obviate the recurrence of severe laceration of the perinæum. Probably two oblique incisions would be preferable to a single one in the median line.

I have lately seen and carefully examined this patient, and found her perinæum sound.

CHAPTER II.

PROLAPSE OF THE VAGINA.

THIS condition presents itself under three forms, according as it affects the anterior or posterior wall, or the entire circumference of the canal. Each form involves displacements of the viscera connected with the vagina, and derives its importance from them. The yielding of the anterior parietes of the vagina drags down the bladder, and produces "prolapsus vesicæ," or "vaginal cystocele;" the giving way of the posterior wall induces "rectocele;" whilst the descent of the entire circumference presents a true prolapse of the vagina, and almost necessarily involves more or less displacement of the connected pelvic viscera. This last will need no consideration distinct from that of prolapse of the uterus.

Now the operation proposed, where operative proceedings are called for, is based upon the same principle in each of the three forms of displacement just mentioned, viz., cystocele, rectocele, and prolapsus uteri. That principle is to give support below, in the direction in which the displaced viscus protrudes; and this is done by lengthening the perinæum and contracting the vagina. In a large proportion of the cases of prolapse, it is the withdrawal of such natural support, by the more or less complete laceration of the perinæum, that has been their immediate or exciting cause. In such, therefore, the restoration of the torn perinæum is the proceeding naturally indicated and demanded. In other instances again, the stretching of the vagina by labour and its persistent state of relaxation, usually coupled with a generally relaxed and weakened condition of body, concur to produce prolapse, especially of the uterus. The radical cure here also is, whilst improving the general health, to contract the canal through which the displacement occurs, and to insist

Plate VI
Shews the anterior wall of the vagina and the bladder protruding from between the labia

ments is undertaken. So, likewise, it would be useless and improper to endeavour to cure prolapsus uteri whilst there was any inherent cause of displacement in the uterus itself, such as congestion and enlargement, or as fibrous tumors growing from it. Lastly, malignant disease affecting either of the pelvic viscera would render operations to restore them useless and unjustifiable, unless there was good ground for anticipating its previous eradication by surgical and other means.

The principle of the operation being one and the same in each form of vaginal prolapse, the proceedings adopted require only slight modifications to suit either variety. They consist mainly in the removal of a portion of the mucous membrane from the lower and lateral parts of the vagina, of about an inch in width, and of a horse-shoe shape (Plate 3), and then in bringing the edges of the cut surface together by sutures, so as to secure their permanent adhesion, and the consequent contraction of the calibre of the vagina and the extension of the perinæum forward for half an inch or more.

The principal modification required is in the case of cystocele, in which the width of surface denuded is narrower, or, in other words, not carried so far backward, as is necessary in rectocele and prolapse of the uterus. The sutures used are deep quill sutures and superficial interrupted sutures. For the deep sutures pieces of bougie serve the best, with well-waxed twine. I have tried metallic wire, but found it more unmanageable in application, and it is often apt to cut, from the tightness necessary to secure perfect adaptation. However, for the interrupted sutures metallic wire is preferable to twine or other material. The after treatment is alike for each form of the operation, and resembles that advised for ruptured perinæum. This general account of the operation will suffice in this place, its particular application to each form of prolapse being described in the section devoted to it, and illustrated by appropriate diagrams.

All the operations for prolapsus of the uterus, bladder, and rectum were first suggested to my mind by observing that displacements of those viscera, when associated with ruptured perinæum, as they often were, were cured by the ordinary operation for that lesion. Having this fact impressed on my

mind, I sought to discover whether the idea of treatment it suggested for the cure of prolapse had ever been entertained by any surgeon, and found that Dr. Marshall Hall had proposed and adopted, in cases of prolapse of the womb, the plan of diminishing the calibre, though not the outlet, of the vagina, by taking off some strips of mucous membrane, and then bringing the cut edges together by interrupted sutures, so as to produce a mechanical impediment against future displacement. In this plan I saw a partial realization of my own views, and by repeated trials, where the prolapse was unconnected with lacerated perinæum, I convinced myself of the utility of a plastic operation such as that I have described.

At this time (1853) I was not aware that a similar proceeding had been attempted by any other surgeon; however, I afterwards discovered that Fricke, of Hamburgh, had practised a somewhat similar operation, differing nevertheless in several essential particulars, and especially in this, that he merely took off a portion of skin and mucous membrane from just within each labium, and then brought the edges of the denuded surface together. He thus restricted his attempts to narrowing the vulva, a procedure which could produce only transitory results, and so differed materially from the one I advocate, which makes the contraction of the vagina the essential element of the operation to cure prolapse of the womb. Further, no medical practitioner in this kingdom, so far as I can ascertain, had at this period carried out any similar surgical operation to cure the displacement; but in 1855, Dr. Savage was induced to adopt the plan, and was very successful with his cases. He also informed me that he had discovered in the library of the College of Surgeons a notice of an operation by Dr. Geddings, of America, which was similar to mine, and his experience had taught him, what it had also taught me, that, in attempting the cure of prolapsus uteri, the denudation of the mucous membrane should be carried farther back into the vagina than was done in my earlier operations.

Taking the result of the operation advocated for each form of prolapse of the vagina into consideration, one of the first suggestions to arise will be, whether it is not detrimental to women

who may subsequently have offspring. To this apprehension experience answers in the negative; for many of the patients who have been operated on by me have subsequently been delivered of children, under the care of various practitioners, and, as a rule, no injury has occurred to the perinæum. At the same time particular care and precaution are needed, especially in the passage of the child through the external parts, for it cannot be denied that the elongated perinæum does predispose to laceration.

In conclusion, I may remark that the operative measures suggested by me for the radical cure of cystocele and rectocele had, to the best of my belief, never been devised or executed by any other medical man before me. At the present day these measures are resorted to all over the world, and I am in the frequent receipt of letters from surgeons in different and remote parts, telling me of the success which has attended their adoption of them, and confirming the soundness of the principles upon which they are based. Previous attempts to deal with these rectal and vesical displacements were, though severe and painful (consisting usually of the application of caustics and escharotics to destroy the mucous membrane, and so to produce contraction) mostly unsuccessful and discouraging.

A.—*Prolapse of the Anterior Wall of the Vagina.—Prolapsus Vesicæ or Vaginal Cystocele.—Cystocele.*

This not uncommon accident usually results from the stretching of the parts by repeated, or by difficult labours, and progressively becomes worse when left to itself. It may vary in degree from a slight bulging of the front wall of the vagina to the production of a tumour filling or stretching the canal, or even extending from it and hanging between the thighs. A ruptured perinæum, by removing the natural support of the pelvic viscera, frequently predisposes to this, and indeed to each variety of prolapsed vagina, as a reference to the cases recorded in the last chapter abundantly demonstrates.—(*Vide* Cases.)

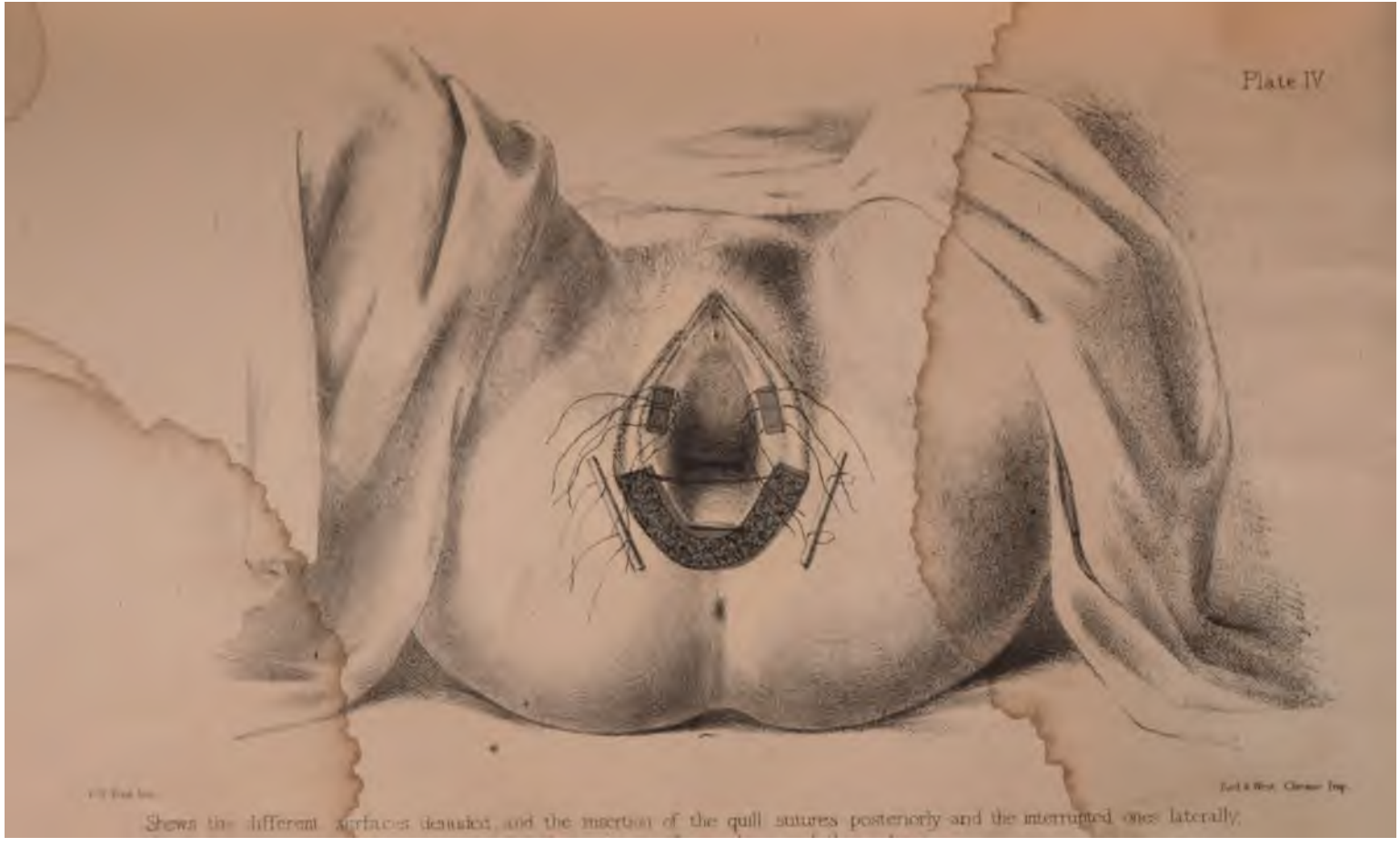
Protracted labour is a common exciting cause of cystocele, particularly when the bladder is allowed to remain full. Sometimes, also, pregnancy tends to produce it, owing to the en-

larged uterus pressing upon the bladder, and frequently causing, in addition, difficult micturition and undue repletion. But without the coincidence of pregnancy or labour, habitual over-distension of the bladder, so common among females, who will sometimes travel a whole day without relieving themselves,—will lead to a stretching of the anterior vaginal wall and eventually to cystocele; a result hastened moreover by violent exertion when the bladder is distended.

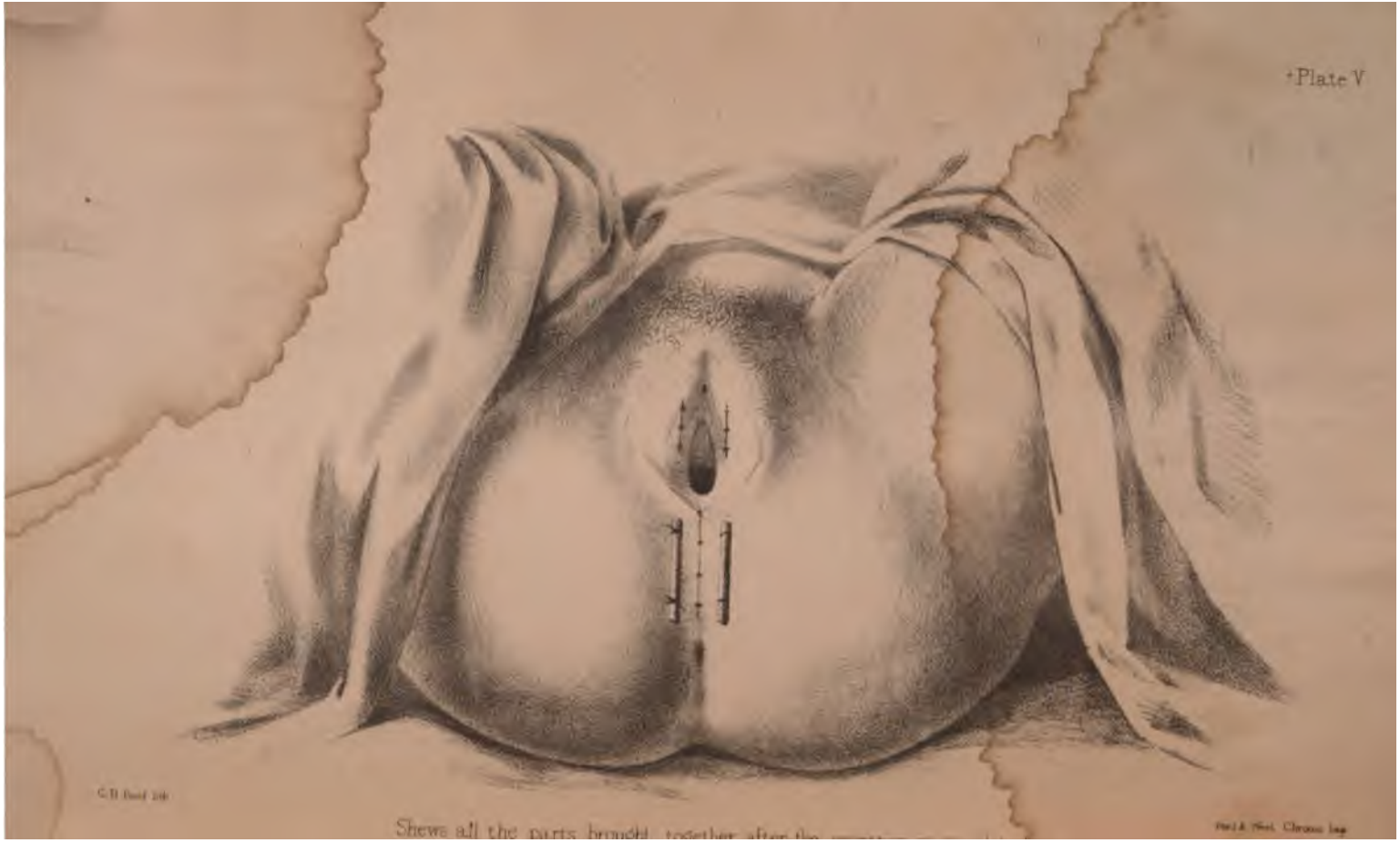
The relaxation of the vagina in part, however produced, causes an alteration in the position of the bladder and of its meatus, so as to impede the evacuation of its contents. This interference with the escape of urine again leads to imperfect emptying of the bladder, and to excessive accumulations, by the weight of which the vagina is stretched still further, and thrust downwards and forwards. Instead of the urethra rising upwards behind the pubes, it becomes curved backwards more and more, until eventually, in complete prolapse, its course is actually downwards and backwards, and its orifice external to the labia. (See Plate 4.)

As might be presumed, the extruded bladder is liable to injury, and may become the seat of ulceration or of other morbid process.

Symptoms.—The patient complains of weight and bearing down, and sensations of dragging in the lower part of the abdomen; uneasiness and pain in walking, and more or less dysuria,—the bladder having, to a great degree, lost its power of contraction. Some patients are obliged to replace the bladder before they can evacuate the urine, or to pass their water resting on their hands and knees with the hips elevated as much as possible. On examination, a soft, elastic, fluctuating tumour is felt at the orifice of the vagina; it is of a red or bluish-red colour, and can be greatly diminished by catheterism: the finger can be passed into the vagina below the tumour, and the os uteri can be felt behind, nearly in its natural situation. The surface of the tumour, when distended, is smooth, moist, and shining; but, when the bladder is empty, it is thrown into transverse folds. There is always very considerable mucous discharge, which is exceedingly irritating to the labia and soft parts; and there is sometimes a very dis-



Shews the different surfaces denuded, and the insertion of the quill sutures posteriorly and the interrupted ones laterally.



Shews all the parts brought together after the

tressing irritability of the bladder, and the urine, when passed, is fœtid, and contains much ropy mucus. This arises from a small portion of the urine being always left in the bladder, and the consequent decomposition of that secretion.

Cystocele may be easily distinguished from prolapsus of the uterus; it is soft and yielding to the touch, and, on introducing the catheter, the point will be felt through the walls of the tumour, towards the anus; and, on passing the finger upwards, the os uteri is found in its natural position. It can also be easily distinguished from prolapsus of the posterior wall of the vagina or rectocele, or from inversion of the uterus—this last condition preventing the passing of the finger into the vagina at all.

Treatment.—This will depend on the extent and duration of the prolapsus. If it be of recent date, and occurring in young females, the treatment should be frequent catheterism, the recumbent posture, astringent injections within the vagina of alum, tannic acid, oak-bark, infusion of galls, sulphate of iron, cold-water, &c. An additional means is to keep constantly in the bladder a bent metallic or gum elastic catheter, or where this causes irritation, a male gum elastic one, with an elastic bag attached, and a sponge tent within the vagina to uphold the bladder. The injurious accumulation of urine is thereby prevented, and opportunity afforded to the relaxed parts to recover themselves.

By this mode of treatment, I have seen much benefit result. A lady, æt. 24, the mother of two children, who had cystocele of some standing and severity—which, by the way, had been mistaken for uterine prolapse—was much improved by it.

If, however, the prolapsus be of long standing, and occur in females beyond the period of child-bearing, the treatment must, if it be successful, be more severe and radical. Some recommend plugging the vagina with pessaries, made especially for this condition; but such means are but palliative at best, and are often inapplicable on account of the irritation they set up: hence the greater need for a surgical procedure. It was recommended by Dr. Marshall Hall to remove a triangular slip of the mucous membrane, the base being towards the orifice of the vagina, and to bring the edges together by sutures, and

thus to contract the calibre of the vagina. Others advise the use of the actual cautery so as to produce a slough, and subsequent cicatrization and puckering. M. Jobert, of Paris, applies caustic around a more or less considerable oval space, on the posterior surface of the vagina, so as to form an isolated spot, and repeats the application of the caustic till the mucous membrane is destroyed. He then pares the edges of the sore with scissors or a bistoury, draws them together, and maintains them in apposition by means of straight needles (the points of which are removed) and a twisted suture. He operated thus on a patient in July, 1838, and subsequently on two others with success.

These operations proceed on the principle of contracting the vagina, and of thereby mechanically preventing the protrusion of the bladder. My principle of operating also is similar. Recognising the prolapse of the bladder to be due to the relaxation of the anterior wall of the vagina, I endeavour to remove this cause by a "plastic" operation, which will be sufficiently described by the history of the following cases. However, I may here remark once for all, that incisions into the sphincter ani are not needed, either in the operation for cystocele, or in that for rectocele, or for prolapsus uteri.

Case I.—M. T., aged 52, has had ten children. Admitted into St. Mary's Hospital February 14th, 1853, suffering from severe prolapsus of the vagina and bladder, which first began to trouble her nine years ago, after her last labour. On the least exertion of walking, or even on standing, or on coughing in the recumbent position, the tumour came down and protruded through the external orifice of the vagina, to the size of a large fist. On lifting up this tumour, when so extruded, there were seen on the under and posterior surface of the os uteri, which was dragged down by the vagina, two or three ulcerated spots produced by friction against the posterior wall of the vagina. The patient could, when reclining on her back, replace the tumour. She had a winter cough, and complained of weakness.

This patient being a servant, suffered greatly from her condition, and was obliged always to wear a bandage to prevent the extrusion of the tumour: but this very support, by the friction and heat, rather increased than diminished the suffering. Her spirits were depressed, and the poor woman became an object of great pity and commiseration. Mr. Clarke, of Gerard-street, recommended her to my care.

Operation.—The bowels having been previously emptied, the patient was on February 15th placed under the influence of chloroform, and then put in the position for lithotomy, each leg being held by an assistant, a third assistant holding up the tumour with Jobert's bent speculum, and

pressing it under the pubes into its natural position. A piece of mucous membrane, about an inch and a quarter long and three-quarters of an inch broad, was dissected off longitudinally from the vagina just within the labia, the upper edge of the denuded part being on a level with the meatus urinarius. The edges on each side of the vagina were drawn together by three interrupted sutures, and then at the next stage of the operation the mucous membrane was dissected off laterally and posteriorly in the shape of a horse-shoe, the upper edge of the shoe commencing half an inch below the lateral points of denudation, care being taken to remove all the mucous membrane up to the edge of the vagina where the skin joins it. (See Plate 5.) Two deep sutures of twine were then introduced about an inch from the margin of the left side of the vagina, and brought out at the inner edge of the denuded surface of the same side, and again introduced at the inner edge of the pared surface of the right side, and brought out an inch from its margin. In this way the two vascular surfaces were brought together, and retained by means of quills, as in the operation for ruptured perinæum. The edges of the new perinæum were lastly united by interrupted sutures, and the patient placed in bed on a water-cushion. (See Plate 6.) Two grains of opium were given directly, and one grain every six hours; simple water-dressing applied to the parts; beef-tea and wine for diet. A bent metallic catheter, to which was attached an elastic bag to catch the urine, was introduced into the bladder: by this means the bladder was constantly kept empty. This patient progressed satisfactorily from day to day without a single bad symptom; and, on the 22nd, the parts were found firmly united.

February 26th. Deep union perfectly sound; lateral wounds well contracted; the tumour not brought down by coughing.

March 8th. Parts all firmly healed; the patient much improved in health and cheerful. She could walk about without inconvenience, and no amount of exertion produced any prolapse. She could empty her bladder with comfort; and all the leucorrhœal discharge, which was so distressing before the operation, had entirely subsided; the offensive smell of the urine had also departed. On passing the finger into the vagina, the os uteri could be easily felt in its normal position, and the ulcerated spots which formerly existed on its surface were healed.

On the 10th she was discharged cured, and resumed her duties as a domestic servant.

Remarks.—The object sought in this operation was the contraction of the calibre of the vagina, which, as may be imagined, was exceedingly large and flabby. The first step of the operation was directed to the contraction of the vagina laterally, so as to prevent the tumour from falling down from above; the second step of the operation was for the purpose of contracting the vagina posteriorly; that so in the end, by contracting the orifice of the vagina at least two-thirds, and thereby adding to the extent of the perinæum, should the prolapsus not be restrained by the lateral contractions, it could not extrude beyond the orifice of the vagina, but must necessarily fall upon the new perinæum. As was proved by the result, all the objects sought had been fully attained; and it was scarcely possible to imagine a more satisfactory result from any operative procedure. The principle of this operation is equally applicable, as will be hereafter shown, to the cure of prolapse both of the posterior wall and of the entire circumference of the vagina: and also, with some slight modifications, to the relief of prolapsus uteri.

After-treatment.—This in most particulars resembles that pursued after

the operation for ruptured perinæum. Opium is given to allay irritation and pain, and to prevent defæcation; the strength is supported by nourishing diet and wine; water-dressings are applied; and perfect repose is enjoined. The use of injections is, however, contraindicated; for the sutured parts must not be interfered with in any way. It is of the greatest importance to keep the bladder emptied; and this point is best secured by retaining a catheter in the bladder, with a bag to receive the urine as it escapes. After the seventh or tenth day, according to the integrity of the union of the parts, the patient may pass the urine resting on her hands and knees.

The time for the removal of the sutures must be regulated by the circumstances of each case; but, in general, the deep ones may be withdrawn on the third day, the others a few days afterwards.

Case II.—*Cystocele : Cure.*—Mary Ann R., æt. 47, admitted into St. Mary's Hospital April 29th, 1853. Has had nine children, and two miscarriages; her labours were protracted; her youngest child is now seven years of age. Her general health has been bad. Twelve months since she had much bearing-down with pain, and for the last month has experienced a much increased difficulty in passing water. She noticed that the bearing-down was accompanied by the appearance of a tumour the size of a small apple, which she took to be the womb. The urine has varied in quantity on different days, and she experienced most pain when but little escaped. Any exertion increased her sufferings, and even walking was painful. The catamenia have been regular and abundant; the appetite is good; the bowels usually act properly; the urine is of natural colour and appearance.

On examination, a tumour, the size of an orange, was seen protruding through the vulva, and occupying two-thirds of the vaginal canal, which was extremely relaxed.

May 4th. I performed the operation after the plan described; and in the after-treatment gave her opium, nourishing diet, and after a few days, port wine. On the 14th, her state demanding it, she had a mixture of quinine and iron.

The case did well. On the 25th of June, on an examination of the parts, no prolapse was seen; there was strong union of the sutured parts, and the patient was able to get about with ease and comfort, without any dragging or pain being felt, and had perfect and painless action of the bladder.

Case III.—M. A. M., æt. 45, admitted into St. Mary's Hospital April 30th, 1853. Has had five children; her labours have been easy, but as a servant she has had much hard work. For above five years she has suffered inconvenience from the bladder occasionally protruding into the vagina after exertion; for the last five or six months, however, the displacement has been nearly constant, and consequently a cause of much pain and distress, entirely disqualifying her from holding any situation.

From her bodily sufferings and her mental anxiety at being precluded from gaining her livelihood, she was in a low and nervous condition.

The state of the parts corresponded pretty nearly with that described in Case II.

May 10th. Operated in my usual manner, and placed the patient under the same after-treatment. She went on well. The deep sutures were removed on 14th of May: on the 25th she appeared quite well, and was ordered to be discharged. The adhesions set up were strong; there was

no prolapse, no difficulty or pain in making water, and no bearing-down when walking.

I may state that this patient has continued perfectly well, and able to perform the arduous duties of a cook at the hospital.

CASE III.—*Cystocele, with prolapse of the uterus and rectocele, and partially ruptured perinæum.*—Mrs. L., æt. 25, having returned from Sierra Leone to England, on account of her health, was recommended to see me by Sir C. Locock.

At her confinement with her first child, three months since, the perinæum was partially ruptured. Since then she has suffered much from bearing-down of the womb and prolapse of the bladder and recto-vaginal septum. She states that the urine was once retained in the bladder for forty-eight hours, and she dates the aggravation of her sufferings in that organ from that time. She has wasted considerably, and become low, nervous, and sometimes hysterical. Has had no connexion with her husband since her confinement, and has not nursed the child. She cannot sit up or walk without great local distress. She had constant sickness on her voyage home, which greatly increased her sufferings.

I ordered generous diet, and steel with belladonna in pills, with her meals. I proposed to operate in a week.

February 14th, 1854. The operation carried out, and also the after treatment, were similar to what has been already described, with the single exception that the catheter was not retained in the bladder on account of the irritation it caused. The patient was convalescent in a fortnight, and the local inconvenience so much relieved as to enable her to get down-stairs. The result was a complete cure.

CASE IV.—*Vaginal cystocele: Cure.*—Mary H., æt. 55, a laundress, admitted into St. Mary's Hospital April 4th, 1854. Has had seven children; the youngest now twelve years old. All her labours she describes as quick and favourable. About eighteen months ago she experienced a dragging pain in her back, which, during the last three months, has become much worse, and she has now a soft, fluctuating tumour protruded between the labia, and of the size of the fist. She attributes her present condition to her having strained herself by lifting a heavy weight eighteen months ago.

April 5th. Was operated on in the usual way. The bowels were opened by castor-oil on the 18th; and on the 4th of May, she was able to stand up without suffering any protrusion, although there were bearing-down pains. She went out of the hospital, and was ordered to keep the horizontal posture for a fortnight. On the 23rd, she presented herself. There was no protrusion, and the pain had ceased; and she was able to resume her employment.

CASE V.—*Vaginal cystocele: Cure.*—Ellen McK., æt. 28, admitted into St. Mary's Hospital May 6th, 1854. Has had three children. About six months after her second confinement she experienced a fulness and pain in the vagina, which she attributed to her having got about too soon. These symptoms were relieved by her lying down; but her condition grew worse, and a tumour about the size of a hen's egg protruded through the vagina externally. On her becoming again pregnant, her symptoms were alleviated, and the tumour disappeared; to return, however, in an aggravated manner after her confinement; and the more so, as her occu-

pation compelled her to move about. At this time the bladder is seen pressing downwards and forwards the anterior wall of the vagina so far as to constitute a considerable tumour, extending through the external parts to the size of the fist, receding, however, when she lies down. Her condition is rendered worse, and her health weakened, by profuse leucorrhœa, and she cannot make water unless she presses the tumour backwards. Since only a small quantity is passed at a time, she is troubled with a frequent desire, which augments her sufferings. The os uteri can be seen behind the cystocele. The perinæum was entire.

May 31st The usual operation and after-treatment were carried out, and she progressed steadily and satisfactorily in every respect, until the date of her discharge, six weeks afterwards, when she was quite relieved of the prolapsus and concomitant symptoms.

Some time after quitting the hospital she was delivered of a fourth child, without any recurrence of the lesion she formerly laboured under.

Case VI.—*Vaginal cystocele: Cure.*—Anne S. F., æt. 34, admitted into St. Mary's Hospital March 30th, 1858. Has had three children. Thirteen years since, whilst pregnant with her second child, she felt as if something gave way in the pelvis as she was walking up hill, and shortly afterwards discovered a tumour protruding between the labia about the size of a fist. During her next pregnancy it was much better, but returned after her confinement as bad as before. She had tried to wear a pessary, but could not retain it.

March 31st. Operation for cystocele performed. April 2nd. Deep sutures removed. May 3rd. A fungoid excrescence at the meatus urinarius, which caused her great pain, was removed. May 5th. Discharged cured.

Case VII.—*Vaginal cystocele: Cure.*—Eliz. J., æt. 35, admitted into St. Mary's Hospital July 6th, 1858.—Has had six children and five miscarriages. After the birth of her second child, fifteen years ago, she noticed a descent of what she conceived to be the womb. The tumour has progressively increased, and, for the last five years, she has been unable to empty her bladder until she has partially replaced it by pushing it upwards.

July 7th. Operation carried out. 9th. Deep sutures removed. By Aug. 7th, she had got quite well, and was discharged perfectly cured of the displacement.

Case VIII.—*Vaginal cystocele: Cure.*—Mrs. H., æt. 35, mother of four children. Has lived in India for many years, and has long suffered from bearing-down of the bladder and difficulty in passing water. When the bladder is full, the tumour projects from the vulva very considerably, and obliges her to push it upwards before she can empty it.

May 15th, 1859. Operation performed. 20th. Deep sutures removed.

No particular features occurred to deserve recording; but she went on well, and was quite cured of her distressing complaint.

B.—*Prolapse of the Posterior Wall of the Vagina, or Vaginal Rectocele.*

This condition is generally gradual in its origin, and, like the preceding, tends, if left alone, to become worse, mechanical causes seconding the operation of the primary one, viz., relaxation of the posterior wall of the vagina. The accident varies in extent from a mere encroachment of the vaginal wall, to the expansion of it into a tumour projecting between the labia. Its more aggravated stage involves other organs; and the uterus is at length dragged downwards and displaced.

Causes.—Rectocele may be produced by—

1. Habitual and prolonged constipation. The undue stretching of the rectum by fæcal accumulation brings about a relaxed and loose condition of its tissues; and the same cause stretching the parietes of the vagina, produces a like looseness of that canal.

2. Persistence in the use of strong purgatives in persons of lax fibre.

3. An enlarged or a displaced uterus, so pressing on the rectum as to impede the evacuation of its contents, and to cause thereby an overloading and an over-extension of the muscular fibres of the rectum, and the relaxation of the tissues of the vagina, especially behind.

4. Stricture of the anus, or repeated spasmodic contraction of the sphincter at the time of defæcation.

5. Rupture of the perinæum, when this extends to, but does not involve, the sphincter ani. The action of this cause may be explained by supposing the detachment of the sphincter fibres from their connexion with the perinæum, to produce their relaxation, and thereby a deficiency of the natural support to the recto-vaginal septum, especially during the evacuation of the bowels. The perinæum is the normal antagonist to the diaphragm, counteracting its downward thrust of the intestines, especially in the efforts at stool. Hence the perinæum being destroyed, the force of the diaphragm tends to displace the intestines and pelvic viscera, and will be more particularly felt on the anterior wall of the rectum. Sometimes, on a *casual*

examination, the perinæum will be apparently uninjured; but, on a *careful* one, it will be seen that all the deep tissues are lost, and that merely skin is present superficially, so that, in fact, this false perinæum gives no support to the rectum during defæcation.

Symptoms.—The general symptoms attendant on this affection resemble those met with in the preceding displacement. The patient complains of pain in the parts and in the back, with bearing-down and dragging sensations from the loins, aggravated by walking and exertion of any sort, and giving rise to various sympathetic ailments. The special symptoms are tenesmus, the frequent recurring desire to empty the bowels, generally fruitless and attended with much pain, the evident increase of the vaginal tumour, and more or less inconvenience or difficulty in emptying the bladder.

Diagnosis.—This tumour, so soon as perceived, is generally mistaken by the patient for a descent of the womb, but a manual examination will soon detect its real nature.

The patient being placed on her back, the finger is found to pass into the vagina in front of the tumour, instead of behind it, as in *cystocele*, and to reach the os uteri higher up towards its usual position, thus proving that it is not the uterus prolapsed. Again, on introducing the finger within the rectum, it enters into a cul-de-sac of its anterior wall, or in other words, into the cavity of the apparent tumour in the recto-vaginal septum, and it pushes the tumour out through the vagina.

Treatment.—It is of great importance to cure this affection; otherwise, by its continuance, it will drag down the uterus upon it, augment the tumour, increase the miseries of the patient, and, of course, render relief more difficult.

In the early stages of the displacement we may hope for benefit from the recumbent posture, attention to the bowels to prevent constipation, astringent injections, perinæal bandages, and such like expedients. If such fail, however, recourse to surgical measures should not be delayed. The operation I recommend and practise resembles in principle that for cystocele, and needs no detailed description. The narration of

the following cases will serve in illustration. There is this much, however, to be borne in mind, in order to represent my present plan—viz., that I now remove the deep sutures on the third day, instead of leaving them, as in my early operations, for four or five days:—

Case I.—*Vaginal rectocele.*—Hannah H., æt. 49; married. Admitted May 6th, 1853, into Boynton ward, St. Mary's Hospital. Has had six children, the youngest now twelve years old; and has been six years under treatment.

She complains of violent pain in the loins and side of the belly; pain when she passes water and when she has a motion; the latter can only be procured by aperients, and its passage is attended with much difficulty. The straining causes the appearance of a "lump" in the vagina, which she has taken to be the uterus or a tumour from it. The endeavour to walk causes the tumour to prolapse from the vagina, and hence she is obliged almost always to keep in the recumbent posture. She has suffered from considerable leucorrhœa, and from heat and soreness about the vagina. Intercourse with her husband is impeded by the tumour. The urine is thick and ropy.

On examination, the tumour was found to be a prolapse of the posterior wall of the vagina. On introducing the finger into the rectum, it passed forwards into the tumour projecting from the vulva. The perinæum had been torn in some previous labour, and was shorter than natural by imperfect reparation. The leucorrhœal discharge was found to come from the upper part of the vagina and os uteri, the surfaces of which were abraded by friction, the uterus having been displaced obliquely forwards, so that its mouth pressed against the posterior wall of the vagina.

On the 7th of May, having previously cleansed the rectum by an enema, I proceeded to operate (anæsthesia being produced by chloroform) on the same general plan as in cystocele, omitting, as unnecessary in this prolapse, the anterior denudation and sutures. This will be at once understood by referring to Plate 4. The paring off mucous membrane, and the insertion of the interrupted sutures are the parts of the operation for cystocele omitted in that for rectocele; since the object is chiefly to contract the posterior wall of the vagina. The denudation should, however, be much deeper than in cystocele; indeed, it should be carried as far backward, if possible, as the protruding walls of the rectum. (See Engraving 9.)

The patient after the operation was placed as usual in bed on a water-cushion beneath the pelvis, and a grain of opium ordered every six hours.

On the 13th the pulse was quick and feeble; there had been some slight sickness, and excitement of manner, with free perspiration. Opium omitted, and a draught with five grains of the citrate of iron and quinine ordered three times a day. In the afternoon there was a forcing of the rectum, when an opium suppository was used.

14th. Feels better generally, but the tissues between the two quills look red and inflamed. This afternoon the quill sutures were removed, as rigors had occurred, with some bleeding: this last was arrested with ice. The wound indicating a tendency to slough, a lotion of liquor sodæ chlorinatæ was ordered. At 7 P.M., rigors still troubled her; the pulse was 120; tongue moist; skin perspiring; tenderness over lower part of abdo-

men, and a forcing of the bowels. To have an enema containing an ounce of castor oil, at once; and to take a saline draught, and a powder of hydr. c. cretâ and pulv. ipecac. co., every four hours.

15th. The shivering and pain have ceased. The left side of the wound looks puffy.

16th. Is better. Pulse 100; countenance more cheerful; appearance of wound healthier.

After this date the case proceeded satisfactorily; firm adhesions were set up, and the prolapse was cured. On the 12th of April she was discharged. I have since seen her, and find that she remains quite well.

Case II.—*Vaginal rectocele: Cure.*—Anne H., æt. 33, admitted into St. Mary's Hospital June 12th, 1857. Was delivered of her first child three years ago, and has ever since suffered from what she has supposed to be a descent of the womb. She has been a patient in the Westminster Hospital, where an operation undertaken for her relief failed.

On examination, the tumour (of the size of a duck's egg) was found to consist of a protrusion of the anterior wall of the rectum through the labia. The uterus maintained its normal position. The vagina was much relaxed.

June 17th. Operated on in the usual manner for rectocele; went on well, and was discharged cured on the 31st of August.

Remarks.—The benefits arising from a cure are so marked as to leave no doubt on the mind of the patient—the easy action of the bowel being the most prominent symptom of relief.

Case III.—*Vaginal rectocele: Cure.*—Mrs. Fr. has been for eighteen months under medical treatment for bearing-down pains, costive bowels, and painful defæcation. Besides these symptoms a tumour is felt protruding forward into the vagina.

May 9th, 1858. Operation performed in the usual manner. On the 11th the deep sutures removed. All went on well and she became perfectly restored.

Case IV.—*Vaginal rectocele: Cure.*—Hannah H., æt. 35, admitted into St. Mary's Hospital November 12th, 1858. Was confined about thirteen years since, and a few years afterwards experienced much bearing-down and difficulty in relieving the bowels. These symptoms increased, and at length she could not manage to empty the rectum until she had pressed back the tumour from the vagina.

Nov. 17th. Operation as usual. 19th. Deep sutures removed.

A small fistulous opening remained posteriorly in the perinæum, close to the anus, but not communicating with the rectum. Acetum lyttæ was applied to its edges several times, but as this failed to secure its closure, the edges were pared and then brought together by silver wire and shot, which quickly effected a perfect cure.

Case V.—*Vaginal rectocele: Cure.*—Eliza B., æt. 22, admitted into the "London Surgical Home" July 12th, 1859. Has had two children; the prolapse occurred after the birth of the first nearly three years since. Whenever she strains at stool the rectum bulges forwards into the vagina, forming a tumour, which she is obliged to push backwards before she can empty the bowel. She also suffers from some difficulty in passing water.

July 21st. Operation performed. 24th. Deep sutures removed. At the beginning of August she had quite recovered and was discharged cured.

CASE VI.—*Vaginal rectocele: Cure.*—Mary A. H., æt. 25, admitted into the "London Surgical Home" in November, 1859. Shortly after her labour, a few months since, she experienced a bearing-down, as she supposed, of the uterus; but there was also a difficulty in emptying the bowels, and a tumour (the rectum) appeared between the labia, which augmented in size with straining at stool, or otherwise. Besides the rectocele there is also a partial rupture of the perinæum.

Nov. 10th. Operation.

On the 12th, deep sutures removed; and in the first week of December she was perfectly restored, and discharged cured.

Besides the cases of cystocele and rectocele operated upon, now narrated, others could be added, and others likewise complicated with ruptured perinæum or with prolapsus uteri are to be found in the sections respectively devoted to these two last lesions.

CHAPTER III.

PROLAPSE OF THE UTERUS.

Of this displacement there are two varieties, distinguishable as *complete* and *incomplete*, according as the uterus descends so low as to appear, when the patient is in the erect posture, through the external parts, or as it is still detained within the vagina, and so does not extrude. The former, or complete variety, is very commonly known as Procidentia Uteri, and the latter, the incomplete form, as Prolapsus Uteri. However, in practice, the terms prolapsus and procidentia are generally used so very loosely that it seems better to discard them, and to speak, as I propose, of prolapse of the womb being either complete or incomplete.

The displacements downwards of the uterus owe their occurrence to deficient support of the viscus either from above or below, but more commonly from a defect in the former direction. The immediate causes are:—

1. Relaxation of the Ligaments of the Womb.
2. Laceration of the Perinæum.
3. Fibrous tumours of the Uterus and Polypi.
4. Congestion of the Uterus.
5. Mechanical injury, dragging, or straining.

M. Huguier, of Paris, asserts that an elongated cervix is a frequent immediate cause of prolapse of the uterus, and, to remedy it, proposes, apparently as an almost general measure, the excision of the elongated portion. This notion I regard as untenable, since, from my experience, an elongated cervix uteri is quite an exceptional condition, and far from being the rule; and, as to the operation, it is a severe one, and, in my opinion, likely to be almost always unavailing.

The defective support of the womb is often a consequence of

general debility; or mechanical dragging in the course of parturition may displace it, and so stretch its ligaments that it cannot regain its normal position. On the other hand, the fault may be in the supporting parts beneath, and attendant on laceration of the perinæum, or on a relaxed and dilated state of the vagina.

Again, the cause of displacement may be found in the uterus itself: it may be congested, and then by its increased weight, and indirectly by the effects of the morbid state on the ligaments, it tends to sink downwards towards the vulva. In a similar manner, fibrous tumours in the walls of the womb and pedunculate tumours or polypi drag down the uterus. Lastly, mechanical dragging of the womb during labour, or excessive straining, as in lifting weights, may induce prolapse.

Predisposing causes are found in the existence of a roomy pelvis and a large pelvic outlet; in a weakening and stretching of the pelvic ligaments and fasciæ by repeated child-bearing; in a flaccid state of the vagina, or a dilated state of that canal from repeated child-bearing; and generally, in a leuco-phlegmatic habit, favouring the occurrence of leucorrhœa.

One most common cause is the too early adoption or too long continuance of the erect posture after delivery or miscarriage, before the uterus and its connexions have recovered themselves in position, size, and tone; *i. e.*, speaking generally, before the end of the third or fourth week. Again, a violent cough at, and after, labour tends to thrust down the uterus by the strong action of the diaphragm in the act of coughing, when too the vagina has not recovered itself and can render little support.

Single women who have never been pregnant, however, are not exempt from this accident, and in them mostly, from the nature of the causes, cure is more difficult to effect.

Symptoms.—One of the first symptoms of prolapsus uteri is pain in the back, succeeded by some in the groins and labia, in which also there is a feeling of fulness. The pain in the back soon assumes a dragging character; there is a sensation of bearing down or of weight, "as if" (as patients will describe it) "everything were dropping through." Together with these

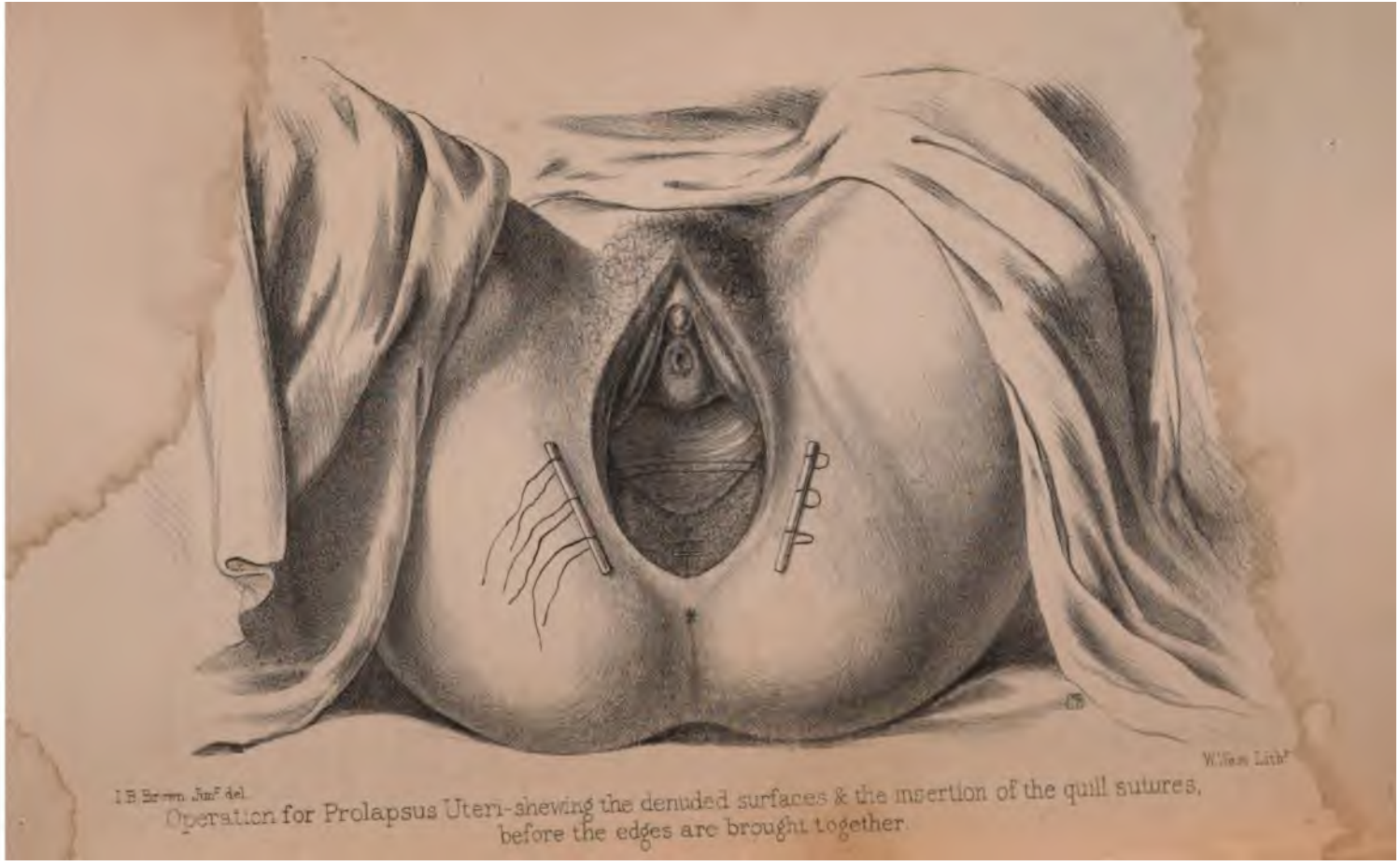
symptoms there are, an increased mucous discharge from the vagina, often a frequent desire to micturate, and sometimes a degree of strangury, irregularity of the bowels, and interference with the process of defæcation, sympathetic disorder of the stomach, loss of, or capricious appetite, dyspepsia, and distension of the abdomen.

With the pain and other local evils, and with the general bodily disorder, it is not to be wondered at that the spirits flag, that every occupation becomes tiresome, and life oftentimes burdensome.

Diagnosis.—With a little care, the os uteri may, by manual examination, be detected, and by observing its position and relations, the diagnosis may be readily made from polypus uteri, and from either variety of vaginal prolapse.

Treatment.—For a long period, in the progress of most cases, the uterus returns of itself, or otherwise is easily replaced, on the patient assuming the recumbent posture. Hence, in the early stage, this posture, with the hips considerably elevated, must be insisted on, and continued for a long time; attention being at the same time given to maintain perfect quiet. The food should be unstimulating, and opium be administered by the mouth to prevent the action of the bowels, and so to keep the parts quiet; injections, however, being occasionally used. So soon as all inflammatory symptoms have subsided, cold, astringent, and stimulating injections may be employed; the cold douche over the abdomen is especially beneficial. At the same time the system will require to be braced by tonics, change of air, and good or generous diet. Let the introduction of pessaries be avoided. I will here state my objections to them, whatever their form, as mechanical supporters. As a general rule they are bad; they are prone to produce irritation and excoriation, and with these leucorrhœa; they are incompatible with perfect cleanliness; and when they afford any relief at all, they stretch and tend to keep up the relaxation of the canal. To give local support I find nothing so useful as the form of perinæal bandage which I devised and described some years back, and have constantly used, made by Mr. Spratt, 2, Brook-street, Hanover-square.

Should these measures, auxiliary to the efforts of nature in



Operation for Prolapsus Uteri-shewing the denuded surfaces & the insertion of the quill sutures, before the edges are brought together.

recovering the normal tonicity and status of the parts, be unsuccessful, or should the diseased condition have been previously neglected until no longer amenable to medical treatment, then we may seek a cure by surgical means. The measure I propose resembles in principle the one I have adopted for prolapse of the anterior and posterior walls of the vagina—viz., mechanically curing the displacement by contracting the relaxed, loose mucous canal. With this object I suggest the removal of a portion of mucous membrane posteriorly and laterally, and the introduction of sutures after the same plan as in the other operations.

The denudation should be most freely carried out posteriorly (see Plate 3), and tapered up on each side towards the fourchette; the whole bared surface having a crescentic or horseshoe shape, adapted to admit of free dilatation in any subsequent labour.

The general plan of treatment laid down applies as well to the incomplete as to the complete form of prolapsus uteri: but the operative proceeding is seldom called for in the former, unless it has been long neglected and the vagina much stretched.

On this and other points connected with the treatment proposed for the radical cure of prolapse of the womb, the excellent article by Dr. Savage in the *Lancet* (Vol. I., 1858, page 164) may be advantageously referred to. However, at the time he wrote it, that gentleman had somewhat mistaken my opinion and mode of practice, and, in reviewing the several sorts of incision employed by different surgeons, he inadvertently described mine as narrower than was the case, and to illustrate this adduced a diagram of mine, given, not to show the operation for prolapsus uteri, but that for cystocele.

It is incumbent upon me to notice the error Dr. West has fallen into, respecting the principle and nature of the operation I adopt for the cure of prolapsus uteri. In his *Lectures on the Diseases of Women*, 1856, p. 187, that physician intimates that I adopted Dr. Fricke's operation in a modified form, according to which the prime object was to contract the vulva. This is wrong; for the operations I at first carried out were done in ignorance of Fricke's plan, and I never adopted the contraction

of the vulva as a principle of my practice, but, on the contrary, the contraction of the vagina, the line of practice Dr. West is pleased to speak of approvingly. Moreover, the very frequent failure of the operation spoken of by Dr. West, is not true of the results of my practice, to which I can appeal, as having been more satisfactory than even those attained by M. Jobert, to which Dr. West refers.

A similar operation to the one just suggested would, I apprehend, be beneficial in those very rare instances of prolapse of the entire vaginal canal without procidentia uteri. This is spoken of as a distinct form of displacement by Dr. Churchill, who quotes a case recorded by Nöel, where the prolapse reached the knees. But a relaxation of the vaginal walls seems almost necessarily to entail a more or less complete subsidence of the uterus, when, according to the accepted nomenclature, we should rather refer to the condition as one of prolapsed uterus than of prolapsed vagina. However this may be, the general treatment would be the same.

However the fact may be explained, experience has taught me that the operation to cure prolapsus uteri, as a rule, fails in young, unmarried women who have not borne children. Such a failure has occurred to me in three or four instances, and in place of operating I would recommend general hygienic and moral measures, as it appears to me that undue excitation and irritability of the parts of generation have something to do with the matter. Supposing my notion to be correct, leeches to the labia might be sometimes called for, with cold hip-baths, gentle purgation, and unstimulating diet, together with moral treatment, in order to allay the irritability. Where such means have failed, and the irritation persists, I have repeatedly excised the head of the clitoris with considerable benefit.

The number of cases to be detailed might have been considerably extended from the records of my own experience, both private and public; but some of my case-books at St. Mary's Hospital were surreptitiously removed and never returned. However, the number at present adduced is ample enough to illustrate the general history of such cases, their treatment by operation, and the amount of success to be anticipated from the operation advocated.

It may be further observed that several of the recorded cases afford illustration also of the two other varieties of prolapse of the vagina, and show that even in such complicated lesions the one operation suffices to effect a cure.

Case I.—*Prolapsus uteri complete: Relief.*—Sarah W., æt. 33, admitted into St. Mary's Hospital March 31st, 1854. Ten years ago was delivered of her first child, after a labour of six hours. About three weeks afterwards she resumed her occupation as a general servant, and at the end of two months felt the first symptoms of prolapse of the womb, accompanied with much leucorrhœa. Although her condition grew worse she continued at work for about a year, when the uterus appeared externally, and obliged her to leave her situation and seek medical aid. For the last eight years she has worn pessaries at intervals, and also a truss to keep up the womb; but these means have only imperfectly relieved her, and been a frequent cause of irritation and annoyance. Her sufferings have, moreover, been increased by an inability to retain her urine, which she has had to pass every few hours in very small quantity.

April 5th. Operation. 6th. After the operation yesterday there was much oozing of blood, which was controlled by the local application of ice, and probably from this interference with the parts one of the anterior quill sutures was this day found to have given way. After this date she went on well, except that the union of the parts took place only at the posterior half of the wound. 22nd. Discharged. She suffers no inconvenience from walking, but feels a pressure on the perinæum when standing up. However, she is greatly relieved both from the local suffering and in general health, and I advised her to abstain from employment for a time, and to support the perinæum by a bandage.

Case II.—*Prolapsus uteri complete, with cystocele: Cure.*—Sarah A., æt. 48, admitted into St. Mary's Hospital October 3rd, 1854. Eighteen years ago, after a very prolonged and painful labour, she suffered from prolapsus uteri, for which she wore a pessary, and went on pretty well until two months since, when she had an attack of fever, and became an in-patient of the Marylebone Infirmary. Subsequently to this illness the displacement has much increased, and at the present time the uterus with the bladder and vagina are protruded externally in the shape of a conical tumour. Around the os uteri are slight ulcerated patches.

Oct. 11th. Operated on in the usual way, and submitted to the after-treatment, as laid down in previous pages. The case did well, and she was discharged cured on the 13th of November. Since that period I have seen this woman, and learnt from her that she is able to pursue her employment, and to get about with ease, without any bearing down. Her bodily health had also greatly improved.

Case III.—*Prolapsus uteri complete: Cure.*—L. F., æt. 20, admitted into St. Mary's Hospital Dec. 12th, 1854. Her health was good up to the time of her confinement three months ago, which extended over four days. It was her first labour, and the child was large. A month after delivery she felt the uterus protrude, and experienced great difficulty in walking. The uterus protrudes externally, and the vaginal constrictor and a small portion of perinæum are torn.—Dec. 13th. Usual operation performed, and after-treatment adopted, as already described. The bowels

were relieved by an injection on the 21st. The discharge of pus, healthy in character, has been very free since the 20th, but greatly decreased by the 23rd, after which her health improved much, and she was discharged, a month from the date of the operation, perfectly cured.

Case IV.—*Prolapsus uteri complete: Cure.*—Ann T., æt. 49, admitted into St. Mary's Hospital April 17th, 1855. Has had three children, the last of which was born suddenly, without assistance. This was eight years since, and the bearing down felt at first has increased until for some long time past the womb has prolapsed completely whenever she has stood, and sometimes indeed after coughing when she has been lying down. She has worn pessaries of two sorts, each of which at first answered very well, but after a time ceased to afford her either comfort or relief. She is thin, weak, of lax fibre, and prone to diarrhœa and vomiting.

May 9th. Measures having been taken to improve her general health, the usual operation and after-treatment were resorted to on this day. As an addition she was ordered 4 oz. of wine and beef jelly daily. 12th. Deep sutures removed. Adhesion by the first intention has taken place satisfactorily. 19th. Gone on well. Goes out to-day, to all appearance quite restored.

She subsequently presented herself at the hospital, in excellent health, declaring that she had never been better in her life, and was able to follow laborious occupation. The relief afforded by the operation in this case was most gratifying; for even during her stay in the hospital the constant improvement in health and general condition was well marked.

Case V.—*Prolapsus uteri complete: Relief.*—E. W., æt. 21, admitted into St. Mary's Hospital on April 28th, 1855. Unmarried: has never had a child. Prolapse of the womb first showed itself six years ago, and has progressively become worse, causing severe bearing-down pains, and difficulty in defæcation. Various instruments have been tried without effect. Menstruation has sometimes happened every fortnight, and been excessive, and leucorrhœa has been constantly present for the last two years, since which time the prolapse became complete, and was complicated with prolapsus of the bowel and of the posterior wall of the vagina, or rectocele.

May 2nd. Usual operation performed. 6th. Deep sutures removed. 14th. Opium discontinued, and bowels opened for the first time. The union of the divided parts and of the new supplementary perinæum is firm. This operation was not followed by the desired success. After a short time the uterus and bowel again prolapsed, so much so that the former almost constantly protruded when she was in the erect posture. Bichloride of mercury and occasional leeching were resorted to, in order to diminish the size of the uterus, and so to lessen its disposition to prolapse. June 25th. The uterus is rather less in size, but is still much indurated. It presses backwards upon the rectum. July 14th. A *second* operation was performed, for the purpose of extending the supplementary perinæum, and almost closing the entrance of the vagina. 20th. She has gone on favourably, and the uterus no longer escapes externally, although it is low down, and its mouth may be seen on separating the labia. It is still larger and heavier than is natural.

This was the first case I had then seen of prolapsus uteri of any severity in an unmarried female. The protrusion of the womb appears to have been secondary to the formation of the rectocele. As she had tried without avail most other means of supporting the viscus, it was only a plastic operation

which held out prospect of permanent advantage. I have since heard that the uterus has again protruded, and that she has consequently not derived permanent benefit from the operation.

Case VI.—*Prolapsus uteri complete: Cure.*—Mary Ann C., æt. 28, admitted into St. Mary's Hospital June 2nd, 1855. Was delivered of her first child in April, 1854; was afterwards so debilitated that she could not sit up for three weeks, and after that she got about she felt the womb low down in the pelvis, and experienced a difficulty in passing water. Four months from the date of her confinement the womb prolapsed one day, as she was walking, completely through the external parts, and induced fainting. Prior to admission in the hospital she had attended from the beginning of June as an out-patient, and being weak and consumptive in appearance, had taken tonics and cod-liver oil.

June 20th. The operation and subsequent treatment carried out in the usual manner. 23rd. Deep sutures removed. The continued favourable progress of the case leaves nothing to record, except it be the marked improvement that ensued in her general health; an event which experience proves may be anticipated, when the cause of much weakness, irritation, and pain, found in the existence of a prolapsed womb, is removed.

Case VII.—*Prolapsus uteri complete: Cure.*—Mary F., æt. 41, admitted into St. Mary's Hospital on July 12th, 1855. Has suffered from prolapse of the womb for twenty years, but it was not until two years ago that the uterus protruded externally. After each pregnancy the displacement was for a time better, but then again grew worse. During all the time she has been subject to menorrhagia, and for the two last years to much leucorrhœa, since which her health, previously good, has materially suffered. She has great difficulty in walking; the uterus falls when she is in the upright posture, and when recumbent, it is driven down by coughing: it is, moreover, enlarged.

July 18th. Usual operation performed. 21st. Deep sutures withdrawn. Went on quite well in every respect, and was discharged cured on August 10th.

Case VIII.—*Prolapsus uteri complete: Cure.*—Julia B., æt. 50, admitted into St. Mary's Hospital in August, 1855. Has had twelve children; the last fourteen years since. Thirty-two years ago, after her first confinement, the first symptoms of prolapsus uteri occurred, which became gradually aggravated, until at length the womb protruded completely. Has been subject to leucorrhœa; has worn different kinds of pessaries for the last nine years, but the quoit-shaped pessary alone appeared to suit her. Two months ago she had an attack of metritis, which her medical attendant attributed to irritation caused by the pessary; since then she has ceased to wear one. On examination, the uterus was found enlarged and protruded beyond the vulva; in the recumbent position it returned within the pelvis.—August 8th. The usual operation performed. 10th. There was much tympanitis with sickness and delirium; pulse slow. At one o'clock, twelve leeches were applied over the abdomen; a dose of castor oil given, to be followed by one of calomel at bed-time. Opium discontinued. In the evening the tympanitis had decreased. Ordered pills of henbane and grey-powder every six

hours. 11th. Bowels relieved. Fulness and pain of abdomen relieved. Deep sutures removed. From this date her recovery advanced rapidly, and on 12th September she was discharged perfectly cured.

CASE IX.—*Prolapsus uteri complete: Cure.*—E. M., æt. 30, admitted into St. Mary's Hospital Nov. 10th, 1855. Six years ago was delivered of her first female child, after a twelve-hours' labour. For three months subsequently she had great difficulty in getting about, owing to bearing-down pains and sympathetic pains in the loins, hips, and thighs. After improving for a time the symptoms became worse, profuse and weakening leucorrhœa came on, and she felt the womb low down in the pelvis. At the end of three years the displacement was so bad that she adopted the use of a pessary, but had very soon to lay it aside, as it caused so much irritation, discharge, and soreness. Six months afterwards the prolapse became complete; the leucorrhœa continuing.

On examination a tumor was seen protruding from the vagina, consisting of the prolapsed bladder and womb, the mouth of the latter being directed backwards. The perinæum is ruptured as far back as the sphincter.—Nov. 14th. Usual operation performed, after-treatment as usual. 17th. Deep sutures removed. The catamenia came on, and troubled the patient; but after these ceased she went on very well, and left the hospital at the end of the month, apparently quite cured, and much improved in health. Whilst in the hospital she took bichloride of mercury with bark, with the good effect of reducing the size and hardness of the uterus.

This was one of the worst forms of prolapsed uterus to be met with, since both the bladder and uterus were involved, and the natural support of these viscera was withdrawn by the rupture through the perinæum. The lesson may be drawn from this case of the necessity for restoring even incomplete lacerations of the perinæum, with a view to prevent pelvic displacements.

CASE X.—*Prolapsus uteri complete: Apparent cure: Relapse.*—Julia L., æt. 21, single, admitted on February 29th, 1856, into St. Mary's Hospital. She has had no child, abortion, or miscarriage, but admits having had sexual intercourse. Three years ago she was perfectly well, but about that time she lifted a very heavy weight, and strained herself. The accident happened while at her occupation of ribbon-weaving. Immediately afterwards pain and bearing down came on, and a leucorrhœal discharge, from which she habitually suffered, was very much aggravated, and at the end of a week the womb came suddenly through the os externum whilst she was walking. Since then the womb has always protruded upon assuming the upright posture and during defæcation. She can return it when lying down, but it does not recede without manipulation. Leucorrhœa has persisted from the date of the protrusion. The catamenia occur every month, but the discharge is excessive in quantity, and lasts for seven days.

Present Condition.—The patient is fleshy, and apparently in good health. Has enlarged tonsils. The uterus protrudes completely; it is larger than natural; the os is abraded. The perinæum is very narrow, but whether congenitally so, or in consequence of continued pressure having produced absorption, does not appear. Has slight leucorrhœa; her voice is husky; has had syphilitic ulceration.

March 3rd. I performed my usual operation for prolapsus uteri.

March 8th. The deep sutures removed.

March 13th. The superficial sutures removed; parts quite healed.

April 19th. She left the hospital, and, as her general health was not very good, attended as an out-patient. At this time the uterus was still heavy, and somewhat low down; there was a little pain and bearing down, and together with general treatment she was enjoined to avoid the erect posture as much as possible.

The subsequent condition of this patient is well described in the words of the able reporter of the *Lancet* of hospital practice, on Nov. 22nd, 1856—viz. "In the case of Julia L. some absorption of the perinæum seems to have gone on, and its lining membrane became excoriated from the prolapse of the womb since the operation. This Mr. Brown believes results from the presence of secondary syphilis, symptoms of which are still manifest. The result of the operation has, therefore, not been entirely satisfactory, and we have heard this gentleman state that, although it is almost invariably successful, yet sometimes cases do present themselves, as the one just referred to, in which it does not prove so favourable as might be anticipated."

Case XI.—*Prolapsus uteri complete, with cystocele: Cure.*—Emma H., æt. 37, was admitted into St. Mary's Hospital on May 1st, 1856. Sixteen years ago, she first began to complain of bearing down; this was after giving birth to her second child. For eight years she suffered from leucorrhœa, menorrhagia, and increased bearing down; and at the end of this period she first observed that the womb began to protrude from the vulva. The uterus has since that time fallen further out of the pelvis, until at last it formed a tumour between the thighs as large as a child's head, according to the patient's account. The discharge has increased with the prolapse; micturition is impeded when the uterus is down; she suffers very much from dragging pains. She is a laundress by occupation, and is unable to perform the work. Her general health is pretty good. She can return the uterus easily. Has never worn any instrument, and has never had any medical or surgical advice for her complaint. She has been in her present condition for the last three years. Menstruation is now scanty, and not quite so regular as formerly.

On examination the os externum is found to be dilated into a huge pouch, through which the uterus and bladder protrude. The os uteri is very much excoriated, and presents an ulcerated zone around the orifice. The epithelium of the vagina is very much hypertrophied, and is rough and scaly.

May 7th. I performed my usual operation.

May 10th. Deep sutures removed.

May 17th. Superficial sutures removed; parts quite healed. The operation has been quite successful in every way.

June 17th. Discharged perfectly cured.

Case XII.—*Prolapsus uteri complete, with cystocele and ruptured perinæum: Cure.*—Esther C., æt. 50, married, admitted into St. Mary's Hospital May 17th, 1856. Four years ago she was delivered of her tenth child: she described it as a tedious labour, lasting from three o'clock in the morning till seven at night; she was attended by a woman; it was a cross-birth, and the child was still-born. The womb protruded through the vagina, which so disconcerted the midwife that she sent for a medical man, who placed the patient on her knees, and pushed back the womb; he had also to detach the placenta. Whether this was done before the

reduction of the protruded womb or not, the patient is not certain, but there was considerable hæmorrhage after the child was born. Since that time she has been unable to follow her occupation as a charwoman, and can work at no employment unless in the sitting posture. The catamenia have been quite regular up to the present time; she has suffered from a dark-yellow discharge for the last twelve months. The uterus began to prolapse on getting about after her confinement, and has gradually increased. When confined of her first child she ruptured her perinæum up to the sphincter, but not through the muscle, consequently she has never had a full perinæum.

Present Condition.—Middle stature, of well-developed muscular frame. The uterus constantly protrudes, even in the recumbent posture, but can be returned by manipulation. It is rough and scaly, the epithelium being hardened. She cannot micturate when the uterus is down, having to push it up to do so, as well as the bladder, which is also prolapsed. The uterus when down is the size of a swan's egg, and the os is excoriated. The cicatrix of the former rupture of the perinæum is quite visible, but complete union did not take place.

May 28th. I performed my usual operation.

May 31st. Deep sutures removed.

June 1st. Interrupted sutures removed.

June 15th. The parts soundly healed. Discharged cured.

Case XIII.—*Prolapsus uteri complete: Cure.*—Sarah C., æt. 52, admitted into St. Mary's Hospital April 17th, 1857. Has had nine children and several miscarriages. The uterus began to protrude after the birth of the sixth child, and has now attained the size of a fist. A small polypus is attached to its anterior lip.

April 23rd. Operated on. 26th. Deep sutures removed. On June 8th discharged cured.

Case XIV.—*Prolapsus uteri complete: Cystocele: Cure.*—Sarah M., æt. 66, admitted into St. Mary's Hospital on May 8th, 1857. Enjoyed good health until the disappearance of the catamenia eighteen years ago; since then she has been very weak, and two years back the uterus began to protrude, and during the last three months has caused her great discomfort, both by its complete prolapse and by ulceration having seized upon the os. The anterior wall of the vagina is also much prolapsed by the pressure of the bladder above it.

May 12th. Operation. 15th. Deep sutures removed. June 12th. Discharged cured.

Case XV.—*Prolapsus uteri complete: Cure.*—Louisa M., æt. 26, admitted into St. Mary's Hospital July 16th, 1857. Has had two children. About twelve months ago the prolapse of the womb was first noticed; it has gradually increased, and now is seen externally as large as an orange.

July 29th. Operation. 31st. Deep sutures removed. Sept. 7th. Discharged cured.

Case XVI.—*Prolapsus uteri complete: Cure.*—Fanny W., æt. 30, admitted into St. Mary's Hospital July 23rd, 1857. About three months ago, after a violent attack of sea-sickness, with straining, the womb protruded externally, of the size of a large egg, and she was unable to return

it. As she suffered much from its protrusion, and from an inability to retain her urine, she came to London and had the womb replaced by the aid of instruments. Since this was done she has worn a pessary.

July 28th. Operation. 31st. Deep sutures removed. August 23rd. Discharged cured.

Case XVII.—*Prolapsus uteri complete: Cure.*—Anne P., æt. 27, admitted into St. Mary's Hospital October 7th, 1857. Has had two children. The uterus began to protrude after her first confinement, and to relieve it has tried injections and pessaries, and without the latter it has always protruded through the external parts.

Oct. 17th. Operation. 20th. Deep sutures removed. Nov. 16th. Discharged cured.

Case XVIII.—*Prolapsus uteri complete: Cure.*—Anne D., æt. 36, admitted into St. Mary's Hospital Oct. 13th, 1857. Has had six children. About three years since first discovered the displacement of the uterus, which has since protruded externally whenever she has stood upright, but has been returned readily in the recumbent posture.

Oct. 14th. Operation performed. 16th. Deep sutures removed. On Nov. 7th the displacement was quite cured, and she was discharged.

Case XIX.—*Prolapsus uteri complete: Cure.*—Mrs. P., æt. 52. Has had two children. About six years ago she began to suffer much from leucorrhœa, and three years since experienced severe dragging pelvic pains, and soon afterwards found the uterus protruding through the external parts. Since its prolapse it has increased in hardness and volume, and now is as large as a fœtal head in the seventh month.

October 21st, 1857. Operation performed. 24th. Deep sutures removed. 29th. The superficial. Nov. 10th. Quite well.

Case XX.—*Prolapsus uteri complete: Cure.*—Susan S., æt. 44, admitted into St. Mary's Hospital January 8th, 1858. Has had three children; the last three years ago. The birth of this child was so rapid that it fell from her as she was standing, and from the toughness of the umbilical cord, which did not break, pulled on the uterus and caused its inversion. The womb was returned, but she lost a great deal of blood, and was unable to leave her bed for a month. When she did get about, she found the uterus prolapsed.

Feb. 3rd. Operation. 6th. Deep sutures removed. 13th. Superficial removed. March 12th. Discharged cured.

Case XXI.—*Prolapsus uteri complete, with cystocele: Cure.*—Elizabeth H., æt. 61, admitted into the "London Surgical Home" May 18th, 1858. Has had four children and four miscarriages. Ten years ago first perceived a small tumour protruding through the vulva, after previous bearing-down pains for a long time. The tumour rapidly enlarged, and for the last four years has been as large as the head of a nine months' child. The difficulty of passing water has also been so great as to require her to press the displaced bladder backward with her finger before she could pass any.

May 20th. Operation. 22nd. Deep sutures removed. July 4th. Discharged cured.

Case XXII.—*Prolapsus uteri complete: Cure.*—Anne M., æt. 28, admitted into St. Mary's Hospital July 27th, 1858. Was seven years ago confined of a child, but perceived no inconvenience until a few weeks ago, when the uterus, from sudden strong exertion, prolapsed through the vulva.

August 4th. Operation performed. 6th. Deep sutures, and on the 12th the superficial sutures removed. Sept. 10th. Discharged cured.

Case XXIII.—*Prolapsus uteri complete: Cure.*—Anne S., æt. 42, admitted into St. Mary's Hospital August 3rd, 1858. Has had eight children. Five years ago experienced a dragging sensation in the pelvis, which increased gradually, and seven months ago was followed by the descent of the uterus through the vulva, of the size of a goose's egg. For some time past it has been continually protruded, not even returning at night.

August 4th. Operation as usual. 6th. Deep sutures removed. On the 18th September, discharged cured.

Case XXIV.—*Prolapsus uteri complete: Cure.*—Elizabeth T., æt. 38, admitted into the "London Surgical Home" on September 27th, 1858. Has had eight children. Began to suffer from bearing down of the womb after the birth of the second child, seventeen years ago. The prolapse has advanced, and during the last nine months the uterus has protruded externally whenever she has stood up. The perinæum is partially torn.

Oct. 1st. Operation. 3rd. Deep sutures removed. 30th. Discharged cured.

Case XXV.—*Prolapsus uteri complete: Cure.*—Eliza T., æt. 41, admitted into the "London Surgical Home" September 27th, 1858. Has had four children; the last seven years ago, and at its birth the prolapse of the womb came on, and progressively grew worse. The perinæum is slightly torn.

Oct. 1st. Operation. 3rd. Deep sutures removed. 30th. Discharged cured.

Case XXVI.—*Prolapsus uteri complete: Cure.*—Jane W., æt. 25, admitted into St. Mary's Hospital October 2nd, 1858. Was confined of her first child six months ago, and a few weeks afterwards perceived the prolapse of the womb. Injections and pessaries have been tried without relief.

Oct. 6th. Operation as usual. 8th. Deep sutures, and on 12th superficial ones, removed. She progressed favourably, and was discharged cured.

Case XXVII.—*Prolapsus uteri complete: Cure.*—Elizabeth C., æt. 22, admitted into St. Mary's Hospital October 19th, 1858. After her last labour, six months ago, she found her womb came down into the vagina, and very shortly protruded externally. At first she could readily return it when lying down, but latterly has been unable to do so.

Oct. 21st. Operation as usual. 23rd. Deep sutures removed. Nov. Discharged cured.

Case XXVIII.—*Prolapsus uteri complete, with cystocele: Cure.*—Mary F., æt. 63, admitted into the "London Surgical Home" on Nov.

2nd, 1858. Has had eleven children and three miscarriages. For the last twenty years the uterus has protruded externally, and has increased to the size of the head of a nine months' child. She has great difficulty in micturition.

Nov. 4th. Operation. 6th. Deep sutures removed. Discharged cured at the end of five weeks.

Case XXIX.—*Prolapsus uteri complete: Operation, with vaginal cystocele: Cure.*—Mary K., æt. 53. Admitted into the "London Surgical Home" in November, 1858. Has had three children and six miscarriages, and for twelve years has suffered from bearing down of the womb, which for the last three years has protruded between the labia when she has stood upright and walked about. She has also experienced great difficulty in micturition; and, indeed, could not empty the bladder without first pushing upwards the displaced organs.

An examination showed that the uterus in its descent was accompanied by the bladder; in other words, the prolapse of the womb was complicated with cystocele.

Nov. 8th. Operation performed. 10th. Deep sutures removed. She recovered quickly, and went out cured at the beginning of December.

Case XXX.—*Prolapsus uteri complete, with vaginal cystocele: Cure.*—Mary S., æt. 45, single, admitted into St. Mary's Hospital November 6th, 1858. Four years ago noticed a protruding tumour from the vulva, which has subsequently augmented in volume, and is at present as large as a tea-cup. On examination, it was found to be a prolapse both of the uterus and bladder.

Dec. 1st. Operation for prolapsed uterus performed. 3rd. Deep sutures removed.

On January 8th, 1859, having the parts restored in position, she was discharged perfectly cured.

Case XXXI.—*Prolapsus uteri complete: Cure.*—Maria G., æt. 32, admitted into the London Surgical Home on December 2nd, 1858. The prolapse of the womb has been coming on for fourteen years, during thirteen of which she has worn a pessary, to prevent protrusion externally. For the last year she has been compelled to give up its use.

Dec. 9th. Operated on. 11th. Deep sutures removed. On the 17th, the superficial withdrawn. January, 1859. Discharged cured.

Case XXXII.—*Prolapsus uteri complete: Cure.*—Martha B., æt. 29, admitted into St. Mary's Hospital Dec. 6th, 1858. Three and a half years ago she was confined of twins, and immediately afterwards the uterus began to prolapse. It now shows itself, but not completely, between the labia.

Dec. 15th. Operation. 17th. Deep sutures removed. Slight hæmorrhage attended this proceeding, but was readily checked. Jan. 15th, 1859. Discharged cured.

Case XXXIII.—*Prolapsus uteri complete, with vaginal cystocele: Cure.*—Selina W., æt. 29, admitted into St. Mary's Hospital Dec. 8th, 1858. About three years ago, and during the second month of pregnancy, she first experienced a bearing down of the womb. This disappeared as pregnancy advanced; but, subsequently to her delivery, it recurred and

grew worse, but the uterus did not make its appearance externally except after long standing or much exertion. She suffered also occasionally from much difficulty in passing water.

Dec. 15th. Operation. 17th. Deep sutures removed. Jan. 17th, 1859. Discharged cured.

Case XXXIV.—*Prolapsus uteri complete: Cure.*—Mary H., æt. 42, single, admitted into the "London Surgical Home" April 17th, 1859. The prolapse of the womb has gradually increased in severity for the last ten years. Its origin she assigns to over-exertion.

April 22nd. Operation performed. 23rd. Deep sutures removed. On 27th, the superficial. May 21st. Discharged cured.

Case XXXV.—*Prolapsus uteri complete, with cystocele: Cure.*—Mrs. W., æt. 28, admitted into the "London Surgical Home" on May 4th, 1859. Has had three children, and first found the womb come down after the second confinement. This displacement progressively increased, and the uterus now protrudes like a tumour of the size of a hen's egg between the labia. She has also suffered much in micturition. The perinæum is slightly lacerated.

May 12th. Usual operation. 14th. Deep sutures, and on 19th, the superficial removed.

The operation proved very successful; and she was discharged cured at the beginning of June.

Case XXXVI.—*Prolapsus uteri complete, with rectocele and cystocele: Cure.*—Eliza C., æt. 34, admitted into the "London Surgical Home" in June, 1859. Has had five children, and suffered from prolapse of the womb ever since her first confinement. The displacement has gradually increased, and her symptoms have been much aggravated by a protrusion of the rectum forward, when at stool, into the vagina (rectocele), as a tumour nearly equal in size to the prolapsed uterus itself; and it is sometimes half an hour before she can replace it, and complete the evacuation of the bowel. Moreover, she has, for a long time, found much difficulty and pain in micturition.

June 9th. Operation performed. On the 11th, the deep sutures were removed. On the 13th, she was seized with an attack of pericarditis. This was gradually subdued; and she eventually left quite cured of all her distressing lesions.

Case XXXVII.—*Prolapsus uteri complete, with rectocele and cystocele: Cure.* (See Engraving 8.)—Mrs. M., æt. 47, admitted into the "London Surgical Home" October, 1859. Has had three children. The prolapsus first appeared thirteen years since, and, for a time, she wore a pessary with advantage; but latterly has been obliged to discontinue its use. The rectum and bladder are likewise both of them prolapsed into the vagina.

October 13th. Operation performed as usual, except in the use of metallic wire for both sutures. 16th. Deep sutures, and on 20th, superficial sutures removed. Early in November she went out cured.

Case XXXVIII.—*Prolapsus uteri complete: Cure.*—Elizabeth P., æt. 65, admitted into the "London Surgical Home" Nov. 14th, 1859. The rectum has prolapsed for thirty-nine years, but the uterus has come down

for only the two last years. It now appears between the vulva of the size of a nine-months' child's head.

Nov. 24th. The prolapsus recti treated by operation, and some piles tied. Dec. 15th. Operation for prolapsus uteri. 17th. Deep sutures removed. Discharged cured, five weeks after the last-named operation, in January, 1860.

Remarks.—This was the worst case I had seen; the poor woman having for thirty-nine years suffered, and during that time performed the hardest kind of labour, and yet at the age of sixty-five underwent two severe operations successfully. She still continues perfectly well (1861).

Case XXXIX.—*Prolapsus uteri complete: Cystocele: Cure.*—Mrs. P., æt. 32, admitted into the "London Surgical Home" on January 2nd, 1860. Has had five children. The prolapse began about six weeks after her second confinement, and has gradually advanced, until now it protrudes between the labia, and is complicated with cystocele and its consequences, difficult micturition, &c. To get the bladder relieved it has been necessary for her to push back the tumour in the vagina.

Jan. 5th. Operation. 7th. Deep sutures removed. Feb. 20th. Discharged cured.

Case XL.—*Prolapsus uteri complete.*—Elizabeth D., æt. 27, admitted into the "London Surgical Home" January 7th, 1860. Has had two children. Two years and a half ago, after great exertion, the uterus began to prolapse, and soon protruded externally whenever she assumed the erect posture.

Jan. 19th. Operation. 22nd. Deep sutures removed. Feb. 22nd. Discharged cured.

Case XLI.—*Prolapsus uteri complete, with cystocele: Cure.*—Mrs. B., æt. 33, admitted into the "London Surgical Home" on January 24th, 1860. By occupation she is a weaver, and has been in the habit of allowing the bladder to become greatly distended. The prolapse of the uterus she noticed eight years ago, and it has been complicated with difficult micturition.

Jan. 26th. Operation. 28th. Deep sutures removed. Feb. 28th. Discharged cured.

Remarks.—This patient was four or five weeks advanced in pregnancy at the time of operation, and, as is always the case under such condition, the parts healed quicker and better than they do in unimpregnated women.

CHAPTER IV.

VESICO-VAGINAL FISTULA

Was long considered one of the opprobria of surgery, since, with few exceptions, attempts at cure entirely failed. But now this is no longer the case; for, thanks to the persevering and rightly-directed efforts of several surgeons within the last few years, it can be successfully treated in almost every case.

By the term "vesico-vaginal fistula" is understood an unnatural communication between the bladder and the vagina, allowing all, or a portion of the urine to escape through it, instead of solely through the urethra. This opening is different from that produced by a rupture of the bladder; for it is not a simple accidental laceration, but the result of sloughing of the coats of the vagina and bladder.

Causes.—1. The wall of the vagina may be wounded during criminal attempts to procure abortion. 2. Retention of a pessary within the vagina, inducing inflammation and subsequent ulceration, or sloughing. 3. The long impaction of the child in the pelvis during labour, inducing, by pressure, inflammation ending in ulceration and perforation. 4. Careless or improper use of instruments, and the operation of turning to effect delivery, especially if the bladder be not empty. 5. Corroding cancer of the uterus or vagina may perforate the bladder. 6. Stone in the bladder at the time of delivery is another, but a rare cause, the bladder being pressed between the head of the child and the stone within.

A review of the causes productive of the lesion in the forty-one cases of vesico-vaginal fistula on which I have operated, shows that the third and fourth in the above category have been, either together or singly, the effective causes in every instance save one. In eleven patients labour was much pro-

tracted, but no instruments were used; of these eleven, two had a breech, and one an arm presentation; in the last, turning was adopted to deliver the child, and, in one of the other two cases, evisceration of the child was found necessary on account of its long impaction in the pelvic outlet. In all the other patients instruments were employed, though not until the labour had endured for a long time—sometimes, in the hands of ignorant nurses, for two or three days—and the mischief to the vesico-vaginal septum was complete. From the histories of the patients moreover, it may also be gathered that the bladder was not properly attended to during the protracted labour, at least in three or four cases, but probably in several more, the notice of the circumstance being overlooked. In one instance, it was distinctly stated that attempts to introduce the catheter, during a labour of four days, failed.

The first case recorded is the exception to the rest, for it appears to have owed its origin to a remarkable and no less rare cause—not noted, as far as I am aware, in any treatise—viz., the presence of a calculus in the bladder. The stone was removed by me some time after the accident, and found of very considerable size. The explanation of its production of a vesico-vaginal fistula is to be found in the supposition that it must have been so placed that the septum between the bladder and vagina was so pressed between it and the child's head in passing through the pelvic outlet as to have inflamed and sloughed.

I cannot, in passing, avoid making the remark that, so far as my experience goes, the prevention of this lesion is very much under the control (where it owes its cause to delivery) of the accoucheur; and that with proper care, attention to keeping the bladder empty, and still more, by not allowing the head to remain a long time just within the os externum, it is an accident that should rarely occur. In this recommendation of interference to accelerate the delivery of the head of the child, I am opposed to many eminent obstetric writers. Still, when I reflect on the very many cases of this serious lesion which have fallen under my notice, and on the fact of their almost invariable origin, from protracted delivery and pressure within the vaginal outlet, I feel my opinion to be well founded. The

history of some of the cases recorded will afford the best evidence for this opinion.

The situation and extent of fissure are of considerable importance with reference to treatment. The laceration may be vertical, though more commonly transverse, and may vary in size from a small fistulous opening the size of a pin-head to a complete fissure, extending the whole length of the vesico-vaginal septum; nay more, it may extend so far forward as to lay open the whole of the urethra, or be continued backwards into the os and cervix uteri, or into either of these singly. In figure the fissure varies greatly; it is sometimes irregular, and then more difficult to deal with. In cases of long standing, and especially where unsuccessful attempts have been made to close the fissure, bands of adhesion are frequently thrown across so as to divide it into two, or even three fistulous openings; and often such adhesions also produce an awkward puckering, and more or less occlusion of the vagina, requiring preliminary treatment before an operation to close the fistula can be undertaken.

Differences in the situation and extent of the injury have received different names, which, though scarcely worth perpetuating, need be mentioned. For instance, when the laceration extends beyond the vagina into the os and cervix uteri, it constitutes a vesico-utero-vaginal fistula; when the opening is between the bladder and uterus, and the vesico-vaginal septum is entire, it is called a vesico-uterine fistula; or when the injury involves the urethra together with the vagina, it is a vesico-urethro-vaginal fissure.

Lastly, either variety of fistula may be complicated with other surgical lesions about the pelvis, such as displacement of the uterus, recto-vaginal fissure, and rupture of the perinæum.

Symptoms.—The involuntary escape of the urine is the prominent and leading evidence of the nature of the accident, and of itself renders the condition of the patient painfully distressing. In the words of Dr. Fleetwood Churchill, "The escape of urine is attended with so marked and irrepressible an odour, that the patient is placed '*hors de société.*' Obliged to confine herself to her own room, she finds herself an object of disgust

to her attendants and even to her dearest friends. She lives the life of a recluse without the comforts of it, or even the consolation of its being voluntary. It is scarcely possible to conceive an object more loudly calling for our pity, and strenuous exertions to mitigate, if not remove, the evils of her melancholy condition." The escape of the urine also produces excoriation of the vagina and external parts.

Wherever this sad condition is suspected, a most careful examination should be made by passing a catheter or probe into the bladder, and introducing the forefinger of the other hand into the vagina, when, if there be an opening, the finger will come in contact with the catheter or probe at some point or other. The best position for examination is, for the patient to rest on her hands and knees; then the vagina being held open by retractors, the surgeon can see as well as feel the size of the fistulous opening. An examination is especially necessary, as partial paralysis of the bladder may induce incontinence of urine. The examination is easily made when the vagina itself is not cicatrized. The use of a speculum, by dilating the vagina, renders it possible to detect the fistulous opening when the plan just proposed fails to do so: indeed, I always use the speculum so as to satisfy myself of the exact nature, size, and position of the opening.

Besides the situation of the lesion, its cause and duration are important in regard to the treatment to be pursued. If it has been produced by a sharp cutting instrument, the early application of sutures may occasionally prove successful; and, in other cases, if sutures be applied as soon as possible after the discovery of the opening—that is, before the edges have become thickened and turned inwards towards the bladder—a favourable result may be anticipated.

When the fissure is far back, and there is considerable loss of substance, the success of an operation is rendered more difficult; and the further forward it is, so much the more easy is the cure.

History of Operations proposed.—I shall now allude briefly to the different modes of operation that have been tried.

Dessault's method consisted in plugging the vagina and main-

taining a catheter constantly in the urethra, so as to divert the discharge from its unnatural channel, and give this a chance of closing.

Chopart, Peu, S. Cooper, and Blundell, relate cases of cure by this means. It is, however, in some cases impracticable to continue the catheter in the urethra owing to the irritability of the bladder.

Cauterization.—Various modes of cauterizing have been recommended: the nitrate of silver, the nitrate of mercury, and the actual cautery, and galvanism (as recommended by Mr. Marshall, University College Hospital) have all been tried, but with very partial success. A few successful cases are, however, recorded by Dupuytren, Delpech, Dr. M'Dowell, Dr. Kennedy, Mr. Liston, Dr. Colles, Dr. Ferrall, and others. In using any form of caustic, the patient should be placed on her hands and knees, and a speculum introduced, through which the caustic should be passed, and then lightly applied to the edges of the wound. A piece of dry lint should be immediately afterwards introduced to plug the vagina, the patient placed in bed, and a long gum catheter introduced, having attached to it an india-rubber bag to receive the urine. As a portion of the after-treatment (were I disposed to adopt this plan of operating by caustics, which, considering the superiority of the plastic operation presently described, is not probable), I should insist on giving a dose of solid opium immediately, and on continuing it from time to time, so as to prevent pain and produce constipation, as a measure in my estimation of the greatest importance; for I am convinced any action of the bowels by which the pelvic viscera are disturbed, will always tend seriously to prevent contraction and union.

Dr. Blundell relates a case where the fistula at the neck of the bladder was cured by laying it open into the urethra, and then healing up the wound, just in the usual way of treating a rectal fistula. Mr. Porter, of the Meath Hospital, performed an operation of this sort, which turned out well. Velpeau suggested, and Jobert put in practice, a rhino-plastic operation similar in principle to that followed in restoring the nose: of four cases so treated, two were cured, one failed, and one died.

Suture.—This method has long been practised; the merit of its introduction is due to Roonhuysen. It has been used with success by Dieffenbach, Blandin, Chanam, Jobert, Malagodi, of Bologna, the late Mr. Earle, Mr. Hobart, of Cork (who states he has had at least ten successful cases), and by Mr. Hayward, of Boston, United States (*American Journal of Medical Sciences*, Aug. 1839), and others.

M. Jobert (de Lamballe) gives a very elaborate account of his modes of operating. In some cases he thoroughly pares the edges and surrounding surface of the fistula, and then paring the side of the uterus, he approximates the denuded surface of the bladder to that of the uterus, and keeps the two in apposition by interrupted sutures. In other cases he dissects back the whole of the anterior lip of the uterus and unites the posterior lip with the denuded opening in the bladder: and he relates cases cured by this means where the menstrual discharge subsequently came through the urethra. In some cases he fastens the edges of the opening almost round the neck of the uterus. Great stress is laid upon free incisions, with a view to remove all tension, and upon constant catheterism after the operation. He relates six cases of which he cured three, and greatly alleviated and very nearly cured two others; the remaining one died. (*Traité des Fistules Vesico-Uterines, Vesico-Utero-Vaginales, Entero-Vaginales, et Recto-Vaginales.* 1852.)

The surgeons whose names have been mentioned used silk or twine sutures, and the idea of employing metallic wire appears due to Mr. Gossett, of the City of London, who published in the *Lancet*, for 1834, the report of a successful operation in which he adopted gold wire for the sutures, and recommended the use of this or other metallic wire as best suited to similar operations. However, Mr. Gossett's proposition did not attract the attention it deserved, and it was not until Dr. Marian Sims of New York published his account of an improved operation for vesico-vaginal fistula, and insisted on the superiority of metallic sutures, that their value became recognised. I at once adopted Dr. Sims' views, and, in the first edition of this work, quoted them at large from Ranking's *Retrospect* (vol. xv., part. i., 1852, p. 232), and so contributed materially to draw

the attention of the profession to them; the more so, as I was able to narrate some cases in which I had successfully put them into practice. Soon afterwards Dr. Sims published a *resumé* of his mode of treatment, which he extensively circulated in this country.

The brochure of my esteemed friend Dr. Bozeman, of Montgomery, Alabama, United States, which he kindly sent me on its appearance in 1856, materially confirmed the utility of metallic sutures and clamps, and indicated other modifications of preceding operations of so valuable a kind as to leave little for future surgeons to devise or desire.

Dr. Sims used what he termed a "clamp" suture, consisting of annealed silver wire, as fine as horsehair, fastened to cross-bars either of silver or lead, as the silver sutures do not ulcerate out. His rule was to remove them on the tenth day. Before introducing the wire he transfixed the parts to be brought into apposition, at as many points as necessary, by a long spear-pointed needle armed with silk thread, the ends of which being left hanging free served as guides for the metal sutures to be substituted for them. The next step was to fix the wire-sutures, by means of a clamp, on each side the united edges, and by split-shot fastened on each ligature.

This plan was adopted by me in a few cases, with very varied success, as published in the last edition of this work. Some slight improvements in Dr. Sims' procedure occurred to my mind in the course of my trials with it, but when Dr. Bozeman's plan became known to me, I at once perceived its superiority, and on the first opportunity carried it into execution, and that too with great success. (See *Lancet*, 1856, p. 540.) Subsequent experience has suggested to me certain amendments in the instruments used, and in other particulars, the description of which will presently appear at large. In the meantime, a few more words are needed to complete the history of the operation for vesico-vaginal fistula.

Shortly after the appearance of my successful case in the *Lancet* of November, 1856, Dr. Wallace, of Greenock, was induced by me to adopt Bozeman's plan in a case which he subsequently recorded in the *Glasgow Medical Journal* for April,

1857. From this time until July, 1858, no other surgeon or physician in Scotland had cured a case of vesico-vaginal fistula. In that month I attended the meeting of the "British Medical Association," held in Edinburgh, and read a paper "On Vesico-vaginal fistula and its successful treatment; illustrated by eleven cases." This paper I at once had printed in the form of a pamphlet, and sent it to every member of the association.

My friend, Dr. Bozeman, was also present at the meeting, and continued for some time afterwards in Edinburgh, during which he operated first on a patient of Dr. Keiller, and afterwards on one of Dr. Simpson, illustrating and explaining in detail the whole procedure which he had so happily devised. He afterwards went to Glasgow, and there repeated his operation and practical instruction before several members of the Faculty in that city.

Soon after this period Dr. Simpson himself began to operate according to Bozeman's method, with great success, introducing however several modifications, and his example was soon followed by some other medical practitioners in Scotland. Judging from their own accounts, some of these followers in the path of Bozeman and myself appear to forget that they have adopted the treatment for vesico-vaginal fistula after its perfection in the hands of their predecessors; that they occupy a vantage ground prepared by others who have had to discover the difficulties and dangers of the operation, and to invent measures to meet and overcome them; and forgetting this, contrast their own recent results with those attained when the operative measures were yet unelaborated—a proceeding which must, on all hands, be considered unfair.

To revert, however, to the history of the operations and instruments proposed by others before detailing my own proceeding, I shall briefly describe the plan of Dr. Bozeman, and the instruments invented by Mr. W. B. Hilliard, of Glasgow. The former was described by me in my paper read before the British Medical Association, at Edinburgh, in July, 1858. The patient being, as Bozeman prefers, placed on a table resting on her hands and knees, and the edges of the fissure pared, a sufficient number of wire sutures, eighteen inches long, are then

passed by a porte-aiguille, in the method shown in No. 1. The two ends of each wire are next brought together by an instrument represented in No. 2; leaving the parts in apposition, as in No. 3; a metal button is then passed over the end of each double suture, as in No. 4; and a perforated shot passed over each wire, as in No. 5; pressed down upon the button, and then firmly squeezed together with a pair of long, strong forceps. Lastly, the wires are cut off close to the shot, leaving the parts as shown in No. 6. The buttons are of lead, which may be cut to meet the special circumstances of any case.

Fig. 3.

Mr. Hilliard, surgical instrument maker, of Glasgow, who witnessed Dr. Bozeman's operations, attributed the length of time they occupied, in a great measure, to the imperfection of the instruments employed, and as a clever mechanician, invented several others, some of which are decided improvements. A

full account of them all is given in his paper in the *Medical Times*, November 24th, 1860, from which I make the following abstract.

Instead of the retractor-like speculum of Bozeman, he proposes a quadrivalved dilating one, calculated especially to dilate the interior and orifice of the vagina, but not in parallel lines,

Fig. 4.

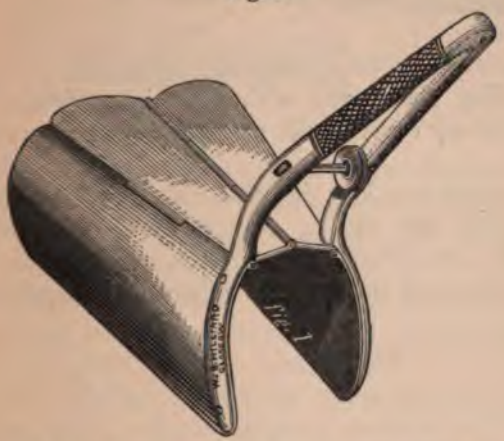


Fig. 5.

and therefore imperfectly, as do other dilators. It is also, as he says, a self-retaining instrument, and requires no assistant to hold it in position (figs. 4 and 5). To save time in denuding

Fig. 6.

the edges of the fistula he also invents an instrument he calls the "fistula clamp" in place of knives or scissors (fig. 6). "With the fork-formed point (he writes) the lips of the

fistula are transfixed and firmly clamped together by passing the sliding-rod over the points of the fork as they emerge through the posterior lip; then by raising the clamp, the edges of the fissure, which are grasped by it, are elevated somewhat

Fig. 7.

above the surrounding parts, and with a straight bistoury (fig. 7), or with a slightly curved knife can be instantly pared off in one slice."

"The metallic sutures are best inserted with Mr. Startin's tubular needle, having the sliding forceps attached to it, recently invented by Mr. Price—a contrivance which enables the surgeon to slide forward the suture-wire when he requires

Fig. 8.

it to project beyond the point of the needle. To this excellent needle I have (fig. 8) affixed a small bobbin at the extremity of the handle, charged with a sufficient length of wire for any

Fig. 9.

number of stitches it may be necessary to insert; with this addition the instrument is self-feeding, and with it the surgeon

can apply the sutures in quick succession without the least assistance from any one."

"The lips of the fissure have next to be brought together, placed in correct apposition, and the sutures secured. For this part of the procedure I have devised the instrument, fig. 10,

Fig. 10.

which is both a depressor of the flaps and a twister of the suture. The lips of the fistula are drawn together by passing the ends of each suture though the small aperture *b*. The edges of the fistula are adjusted, and the surface regulated by manipulating a little with the smooth rounded bulb of the depressor, and the suture is securely fastened by one or two turns of the wheel *a*, which twists the suture to the tightness desired. The operation is now, by some operators, thought complete; but many eminent surgeons, desirous of preventing the secretions from coming into contact with the wound, make use of a metallic plate to cover it. The plate which Bozeman employed was secured by lead pellets placed against its upper surface, and there held by being firmly compressed upon the suture wires; but on seeing his operation I immediately devised the plate (fig. 11), which has nipples upon its upper surface, to supply the place of the loose pellets used by Bozeman."

Fig. 11.

I will now, before describing the mode of operation, enumerate the principal instruments I am in the habit of employing, and of which I append illustrations. I say in the habit of

employing; for I do not pretend to put them forward as the best possible, but as those which have well served my purpose. Indeed, I am not in a position to pronounce on the value of several inventions proposed—as, for instance, of some of Mr. Hilliard—inasmuch as I have not as yet tested their utility, although, judging from the construction of them, they certainly promise to be very useful. The "fistula clamp," I find, can only be used where the edges are pared transversely, and where the fistula is not of very large size; in simple cases, it is a very useful and convenient instrument. The needle is too complicated, and so easily disturbed in its action by any fluid dropping into it, that I cannot recommend its use. Indeed, if the needles be of different angles, and the wire be placed up to, but not through, the end before introducing them, they can be so readily used as to require no improvement.

Speculum.—I use Bozeman's bent speculum (fig. 12), which acts especially as a dilator of the vagina and a retractor of the

Fig. 12.

perinæum. For the eversion of the labia, I trust to assistants, who are further occupied in holding the legs of the patient. Mr. Hilliard's speculum is very useful where there is a lack of assistants.

Forceps.—The forceps are of various kinds, according to the purpose they have to serve.

1. One description is used to seize the mucous membrane near the fistula, preparatory to paring it. These forceps are straight, of different sizes, furnished with fine teeth, and known as "Vulsellum forceps." A larger and longer form is

employed to take hold of the os uteri, and to draw it downwards so as to bring the fissure, when in or near it, within reach for the insertion of the sutures.

2. Forceps made strong to act as pincers for nipping the clamps, or for twisting the wire. These may be straight (fig. 13) when the patient is operated on in the lithotomy position, but need be curved (fig. 14), as in "Harper's forceps," when the patient rests on her hands and knees.

Fig. 13.

Fig. 14.

3. Weiss's "self-holding forceps."

Fig. 15.

4. Bent probe. } (fig. 16), for catching the point of the needle
5. Blunt hook }
as it emerges from the second lip of the fistula.

Fig. 16.

Knives or Scalpels.—Straight and curved. The straight knife is used to make the primary incision around the margin of the fissure, and the curved knives for paring off the mucous membrane comprised within this incision (fig. 17). The curved knives are made respectively for the right and the left hand;

Fig. 17.

for it is important for the operator to be ambidextrous. The form of knives described was of my own invention, and in use long before my friend Dr. Bozeman came to this country. During one of the many discussions I had with him, I showed him my knives, as affording great facility in denuding the edges of the fistula; when he, in his own quiet manner, opened his instrument case and took out three knives precisely similar to mine, made in Montgomery, United States, from his own designs and under his own direction. It will thus be seen that we both felt the necessity for, and had made, the same

kind of instruments, without any communication with each other.

Scissors.—These are of different sorts and sizes; some straight, some curved in the handles, others in the blades, and of several different lengths. They are used to trim the edges when they cannot be pared thoroughly by knives.

Fig. 18.

Needles (fig. 18).—These are also of different lengths and curves; are mounted on handles made of rigid steel and perforated in almost their entire length, but leaving the point grooved on its under or concave aspect. There are fourteen in all. Besides these are many others of different sorts. Mr. Hilliard's "fistula clamp" has been described: but I have latterly used a needle much on the same principle as this instrument is used. That is, instead of seizing the mucous membrane with forceps preparatory to denuding the edges of the fissure, I transfix the fistulous opening by one of the mounted needles; and thus having it securely held, I proceed to cut away the mucous surface.

Fig. 19.

Clamps (fig. 19).—In my earlier operations I used Bozeman's button only, but it afterwards appeared to me preferable to substitute a single clamp for each suture. These clamps are furnished with a nipple pierced to receive the wire for the sutures. They are carefully cut out by hand, in lead, and on their application are curved; but when nipped by the forceps (fig. 21) to fix the

Fig. 20.

sutures, they are straightened; the soft lead yielding to the pressure, as seen in fig. 20.

Fig. 21.

Although these clamps have answered very well, I have lately operated without them, by merely twisting the wire sutures over each other; a proceeding which has the merit of simplifying the operation.

When the fistula is near the lower end of the vagina, the wire may be so twisted by the fingers; but when it is high up I

use two of Weiss's "self-holding forceps," and pass one pair over the other, so as to effect the same purpose (fig. 22).

Fig. 22.

Sutures.—I now always use silver wire for the sutures, as I find it never produces ulceration, as often happens with iron wire. But other metallic wire, as of gold or copper silvered, may be substituted.

Dr. Hayward, of Boston, United States, employs silk sutures, and allows them to ulcerate out, and he reports several instances of success with this plan. I gave it a trial in one case, and it there answered very well.

However, I must say a few words more about the clamps I employ, since I have been accused by two gentlemen of appropriating their inventions without giving them credit for them. In the first instance, it was Mr. Startin who laboured under this misconception (*Medical Times*). I accordingly called upon him to state that I had never seen his clamp or read an account of it; that, moreover, Mr. Blaise, who made instruments both for him and me, had never mentioned the invention to me, but, on the other hand, had lately requested me to show him how my bar-clamps were made (my friend and assistant, Mr. Philip Harper, having always made them for me). With this explanation Mr. Startin expressed himself perfectly satisfied, and wrote to the *Medical Times* to that effect.

The other gentleman who entertained a similar erroneous impression was Mr. W. B. Hilliard, to whom surgeons are indebted for the several ingenious and useful instruments just described. He presumed that I had used his *separate* plate and claimed it as my own invention; but I wrote to assure him I had never seen it or a description of it, for he had given none in his excellent paper on the operation he proposed. He replied that he only claimed the "nipple," not the single plate; but it is the latter only which is of moment, and on its form depend most of the advantages I claim for the separate clamps. However, I could adduce abundant evidence to show that I devised and used the nipple-clamp without a suggestion from any one except my friend Dr. Bozeman, who sometimes employed a somewhat similar clamp over the button, and then a shot to secure it—a contrivance I at once endeavoured to simplify by joining a nipple to the clamp. It seems, therefore, quite clear that Mr. Hilliard and myself attained a similar object quite independently of each other, just as Bozeman and myself did with respect to the form of the knives employed.

I have entered into these particulars thus fully, because I should regret to incautiously deprive any one of the merit justly due to him, for his endeavours in any direction to facilitate the treatment of so miserable a lesion, as vesico-vaginal fistula.

Preliminary Operative Treatment.—This becomes necessary where there has been much cicatrization about the vagina; a condition sufficient frequently to render an examination by the speculum impracticable, and one that must be cured before the operation for closing the vesico-vaginal fistula can be undertaken. In fact, the vagina has first to be restored, to have its strictures destroyed and its cavity opened up and expanded, in order to give space for the manipulation of the subsequent operation.

The cicatrices not only contract the vagina at one spot, but often also occur as bands running across it and rendering it impervious. To destroy those strictures I freely divide them by a straight bistoury, preferring, however, to cut towards the sides of the vagina, and so to avoid injuring the recto-vaginal

septum. Considerable bleeding follows these incisions, but is quickly arrested by immediately plugging the vagina with strips of lint dipped in oil, which after forty-eight hours are replaced by a tent of sufficient size to distend the vagina and keep the incisions widely open; the object being to get them to heal from the bottom by granulation. The tent employed for this purpose is made of a piece of oiled silk, stitched up like the thumb of a glove, and well filled with small pieces of sponge. The tent should be removed every twenty-four hours, and the vagina syringed well out each time; those subsequently introduced should be progressively larger, so as to insure as complete a dilatation of the vagina as is attainable. When the whole surface of the vagina is again covered by mucous membrane, then the operation to close the fistula may be proceeded with. Now and then it is necessary to divide a second or a third time some bands of adhesion before the canal is thoroughly pervious and dilatable.

There is yet another impediment to operating at times met with, caused by the presence of earthy matter deposited by the urine over the vaginal surface. This has, therefore, to be removed by repeated hip-baths and injections. An unhealthy state of the vagina must, as a matter of course, always be remedied before operative measures are resorted to; and I postpone these also in patients who are suckling until the milk leaves the breasts.

As a preliminary measure the bowels should be thoroughly emptied the day before the operation is performed—a little practical matter certainly, but one which I mention here just by way of reminder, and not as a material point unlikely to be attended to by a practical surgeon. It applies, moreover, equally to all operations about the pelvis, where it is necessary afterwards to keep the bowels confined for a considerable period.

Position for Operating.—Three positions for the patient during the operation have been recommended:—1, the semi-prone, suggested by Dr. Sims; 2, on the hands and knees, advised by Dr. Bozeman; and 3, as for lithotomy, proposed by myself. The first of these is thus described by its proposer:—"The knees must be separated some six or eight inches,

the thighs at about right angles with the table, and the clothing all thoroughly loosened, so that there shall be no compression of the abdominal parietes. An assistant on each side lays a hand in the fold between the glutei muscles and the thigh, the ends of the fingers extending quite to the labia majora; then by simultaneously pulling the nates upwards and outwards, the os externum opens, the pelvic and abdominal viscera all gravitate towards the epigastric region, and stretch this canal out to its utmost limits, affording an easy view of the os tincæ, fistula, &c. To facilitate the exhibition of the parts, the assistant on the right side of the patient introduces into the vagina the lever speculum, and then by lifting the perinæum, stretching the sphincter, and raising up the recto-vaginal septum, it is as easy to view the whole vaginal canal as it is to examine the fauces by turning a mouth widely open up to a strong light."

Bozeman always places the patient resting on her hands and knees, without chloroform, as already described in the account of his operation (p. 120). Unlike Bozeman, I usually administer chloroform before operating, and place the patient in the lithotomy position. This position I hold to be generally the best for both patient and operator; it is readily secured without muscular effort to the patient, the weight of the body being all thrown, as she lies in a supine posture, on her back. Chloroform can be inhaled without the impediments which must always be experienced by the patient in either of the other two positions. The parts are well exposed to the surgeon, who seats himself in front during the whole time occupied, and thus is saved the fatigue of standing for, it may be, an hour or more. This is a matter of considerable practical importance, moreover, as calculated to materially expedite the whole proceedings.

Nevertheless, there are now and then cases in which Bozeman's position on the hands and knees is the best; such, for instance, as those in which it affords the best view of the lesion, or those where the mucous membrane of the bladder is very lax and protrudes through the fistulous aperture.

I understand that Mr. Hilliard has invented an operating couch, so that the patient may recline easily on her belly, and the parts be adjusted for the convenience of the operator; and

I doubt not it will prove a useful invention. Mrs. Day, the excellent head nurse at the "London Surgical Home," has also invented an admirable table for the purpose.

Mode of Operating.—Having made ready all the arrangements for proceeding with the operation to close the fistula, and the patient being placed in the lithotomy position, on the very edge of the table, and so held by an assistant on either side, Bozeman's bent speculum is to be introduced into the vagina, and then given into the hands of an assistant sitting on the left side of the operator, who draws the orifice downwards and backwards, whilst the assistants employed in holding the legs keep the labia drawn well apart. Having now the cavity of the vagina well exposed, the operator takes hold of the vaginal septum with a pair of vulsellum forceps, and giving these into the hands of one of his assistants, proceeds to mark out the precise extent of the mucous membrane around the fissure which he intends to remove, by making a slight incision through it with a straight knife, taking care to cut on the lower side first, for otherwise the blood flows from the higher part of the fistulous opening over the lower and obscures it. The next step is to remove this ring of mucous membrane from around the fistulous opening. This is best effected by the curved knives, one of which is for use with the right hand to pare one side of the fissure, the other for the left hand to pare the other; for the use of one or other hand in turn, according to the direction of the surfaces to be denuded, facilitates the procedure. If managed well, the portion of mucous membrane, cut obliquely inwards from around the fistula, can be removed in a single piece. The knives recommended are much preferable to scissors. The "fistula-clamp," invented by Mr. Hilliard (p. 121), promises to facilitate the act of denudation. Latterly, as before remarked, I have tried the plan of transfixing the two sides of the fistula by one of the curved needles, instead of holding them with forceps, previously to paring off the mucous membrane, and have found the plan answer very well.

The paring of the edges being accomplished, the next step is the introduction of the sutures. Formerly I used a straight, flexible, long needle, and passed the wire at once through it;

but I now prefer a hollow one, on the principle of Mr. Startin, as first used by Dr. Simpson, in these cases, except that instead of being made of flexible metal it is of steel, and rigid; and to obviate the necessity of changing the angle, as is done with the flexible needle, I have fourteen needles of different curves, from which I may select the one best adapted to my purpose (fig. 18). The needle is passed within a quarter of an inch external to the denuded surface through the coats of the vagina and the muscular tunic of the bladder, avoiding its mucous lining; it is thence carried across, and made to penetrate the same tissues at an equal distance from the fistula, on its other side. In other words, the two sides of the fissure are transfixed by the needle, and as this carries the wire, a suture is at the same time introduced.

Before thrusting in the needle I pass the wire through it, as far as, but not beyond, its extremity; so that as soon as it has passed through the opposite sides of the fistula, the end of the wire can be pushed onwards beyond the point, and forthwith seized by the forceps; this done, the needle is withdrawn, and the next business is to fasten the suture so introduced.

The several sutures required are inserted in the same manner: their number must be determined by the size and general characters of the fissure to be closed.

The next proceeding is to seize the two ends of each suture as introduced, and pass them through the eyelet hole of the simple bar-clamp (fig. 19), which, it will be seen, is slightly curved and furnished with a nipple-like projection on its back. Holding the two ends of the wire with the left hand, and seizing the nipple of the clamp with a pair of long forceps (fig. 21), this is pushed backwards until it presses against the fissure, and is seen to bring its edges into perfect contact beneath it. It is then necessary to firmly squeeze the nipple of the clamp with the forceps, and thereby secure the wires before cutting their ends close down upon the nipple. The pressure of the nipple at the same time straightens the clamp, and adapts it better to the surface (fig. 20). In the same way each suture in its turn is to be fixed by a clamp, the process of closing being carefully watched, to see that each clamp secures accurate apposition of the subjacent edges.

The advantages of the multiplication of the clamps, as I propose, by fixing one to each suture instead of having one common to all on each side the fissure, are, that it renders it easier to bring together the edges where these are sinuous or irregular; that it secures more perfect apposition by multiplying the points of immediate contact, and by rendering the whole process of closure perceptible to the eye; that where the fissure is wide from great loss of substance, it involves less stretching of the vagina than does a long button; and, lastly, that any one suture can be removed with less disturbance of the rest, and with greater facility, it being necessary only to cut one side of the wire under the clamp, and then draw the latter away by gentle traction with a pair of forceps.

In certain cases Bozeman's button has a superiority over the clamps, as, for instance, where the vagina is very large and lax, or where there is unhealthy condition of the edges.

The sutures are left undisturbed for ten days, after which period they should be removed, the bowels having been cleared out by injections and medicine on the day before.

My recent experience has taught me that clamps or other such fastenings are not positively necessary, at least in some cases, and I believe Dr. Sims holds the same opinion, and has largely acted upon it. Instead of them the plan is to twist the ends of the wire across each other, so as to tie or link them together, after the lips of the wound are accurately brought together. This plan will, I expect, supersede the use of all clamps and buttons. So far as I have tried it, I have succeeded very well, and it has the advantage of shortening the operation and of diminishing the number of instruments required.

Dr. Sims' views on this subject I learn from my eldest son, Mr. A. Boyer Brown, who was, when in New York, kindly allowed by that distinguished surgeon to witness his mode of operating. He, moreover, tells me that Dr. Sims fastened the sutures by seizing the two ends of the wire with a pair of forceps, and then twisting them together by turning the forceps round several times in his hand.

The history of my earlier operations for vesico-vaginal fistula shows that I resorted to lateral incision on each side the sutured

edges with the view of preventing traction upon them. Experience, however, has induced me to discontinue them both as unnecessary, and also as likely to be prejudicial to the union sought for; in the first place, by the drain of blood, and afterwards by the withdrawal of nutritive material from the parts where it is most needed.

Another practice I have now given up as unnecessary is, the introduction of pledgets of lint, dipped in oil, within the vagina, immediately after the operation was completed. For when the lips of the wound are well brought into apposition by the sutures, there is no hæmorrhage, or none of any consequence. If there be, iced-water dressing will suffice to stop it.

The carrying out of the operation just described does not occupy me in the less severe varieties of vesico-vaginal fistula more than twenty minutes; although it may, when the fissure is multiple or large, occupy as long as half an hour or forty-five minutes. This, therefore, exhibits a great gain in expedition over other operators of whom I have accounts; as, for instance, over Bozeman and Simpson, whose operations have extended from one to four hours. This gain in time I attribute chiefly to the facilities offered by the position of the patient, and to the use of the hollow needles recommended.

The size and position of the fistulous opening call for, under certain circumstances, slight modifications or extensions of the operation, as just now described in a general way as applicable to all ordinary varieties of the lesion. Thus, when the laceration has extended to the uterus, and the os uteri forms one side of the fissure, it is necessary to denude its surface and to pass the sutures through it, so as to unite it with the wall of the bladder. There is no particular difficulty in doing this except what results from the greater force required to push the needles through the denser tissue of the os uteri, and from the deep situation of the injury; but this latter difficulty is overcome by drawing the womb downwards in the cavity of the vagina by means of a long pair of vulsellum forceps.

Again, where the fistula opens not through the os but through the cervix uteri, the operation may be varied in two ways. If the aperture be not far above the os uteri, the best

plan is to slit the latter up and so lay it open into the fistula, and then bring the cut edges of the uterine walls into apposition with the bladder by sutures in the ordinary way. On the other hand, if the opening be too high up in the neck of the womb to warrant this procedure, the only other course open is to close the os uteri itself, and thus divert the menstrual discharge into the bladder. This proceeding has, I am aware, been condemned by some as perfectly unjustifiable in any woman during the child-bearing epoch; however, as just stated, it is the only plan that can be followed to close the opening between the uterus and bladder, and so prevent the escape of the urine into the cervix uteri and vagina. Moreover, although the occlusion of the os uteri necessarily cuts off the chance of future progeny, yet if this means is not put into execution, it is still questionable whether a fistulous communication of the uterus with the bladder is compatible with impregnation, and if this is shown in the affirmative, how far it is compatible with the due course of pregnancy.

Nevertheless, though my adoption of this plan has been condemned, yet it has received the recommendation of Dr. Fleetwood Churchill, of Bozeman, and others, and has been successfully followed by Dr. Churchill. Experience has shown that no ill-consequences follow the discharge of the menses through the bladder, and it therefore is pretty much a question for the patient to decide whether she will, for the chance of future family, put up with the distressing and painful inconveniences of the uncured fistula, or forego the chance of offspring and be restored to the comforts and the enjoyment of life; and surely the latter alternative is the better.

I have met with a case where there was so much sloughing of the septum about the os and cervix uteri that these parts projected into the bladder, and as a preliminary measure it was necessary to replace and secure them, and then to denude their surface and bring it into apposition with the bladder. Such cases are necessarily very troublesome, difficult, and tedious.

Not unfrequently there are two or even three fistulous openings, and it is a difficult matter to attempt to close them

all by a single operation; generally it is necessary to take them in turn. However, in one of my patients I succeeded in curing two out of three fistulæ at one time; and in one, very lately operated on, I undertook the closure of two in the course of a single operation, and succeeded most satisfactorily.

In cases of vesico-vaginal fistula complicated by fissure of the urethra, it is necessary to first deal with the vaginal opening, and, when this is healed up, to undertake the closure of the urethral fistula. This last matter is always exceedingly difficult on account of the scanty tissue about the injured part, and the consequent impediment to apposition and union. In such circumstances, I make an incision on each side the fissure, about half an inch from it, so as to allow its edges to be brought together without tension. But the introduction of the sutures is not attempted until some weeks after the incisions are made. During this interval they are dressed with lint dipped in oil.

After-treatment.—This resembles in all essential particulars that advocated by me after the operation for ruptured perinæum, or after those for prolapse. The patient is placed in bed on her side, with her hips elevated on a water-cushion, and the knees bent on the abdomen. Sometimes the patient lies better on her back. A grain of opium is at once given, and repeated every six hours, or oftener, if necessary, during the first day, and about once in twelve hours afterwards every day until the bowels are relieved; the object being to allay pain and to keep the bowels confined. A catheter should be introduced, bent in a curved manner, so that the end within the bladder is turned up behind the arch of the pubes on which it rests, and to its external end should be attached an elastic bag, capable of holding from four to six ounces. A bland but generous diet should be allowed, and wine is often required from the first day. The bowels should be relieved on the ninth day by a dose of castor-oil and by injections.

Causes of Failure.—Failure may result from imperfect denudation of the edges of the fistula; from not taking a deep enough hold of the tissues in passing the needles and sutures; from imperfect closure of the fissure by want of attention in fixing the sutures; from placing the patient in a wrong position;

from inattention in keeping the bladder empty, or from neglecting to insure constipation of the bowels until union of the sutured edges is sufficiently strong. Other causes of failure occasionally met with are, the impaired health of patients and the consequent non-formation of plastic lymph to effect union; or the very indurated character of the edges of the fissure, a state usually brought about by the misapplication of caustics, or by imperfect attempts at operating, or by the use of the actual cautery.

From causes of the last-named class, the induration is sometimes so great as to feel cartilaginous, and the edges prove incapable of throwing out adhesive lymph sufficient to unite them. Again, in some cases where previous operations have been unsuccessfully undertaken, there is not only induration of the edges of the fistula, but the formation of two or three fistulæ, by the development of fibrous bands which have been thrown across the original fissure in the imperfect attempt to close it. Such bands are, however, not necessarily fatal to the operation, though they greatly diminish the chances of its success.

Pyæmia is a surgical accident which may befal a patient after any operation, which owes its cause frequently to depraved health, and needs no particular notice in connexion with the operation in question.

The practical lesson to be derived from noting another cause of failure not immediately connected with the operation—viz., impaired general health—is that operative measures should not be undertaken until this is sufficiently restored.

Cases—Proportion of Cures.—Of the forty-two cases of vesico-vaginal fistula hereafter narrated, thirty-nine were finally cured, and three died. But of the three who died, it is but right to state that so far as concerned the operation for vesico-vaginal fistula (Case II.) it was successful, the death being the consequence of an intercurrent malady—viz. pericarditis.

Exception has been taken to my publication of so many cases as successful, because, forsooth, the operation was repeated in several instances many times. Nevertheless, the fact remains

that, of forty-two sufferers from vesico-vaginal fistula, forty were actually cured. The number of times they were operated upon is of secondary importance, and the arguing upon the repetition of the operation as an evidence of its failure, might be supposed confined to those who are ignorant, both of the nature of the lesion and of the means employed to cure it. For I maintain that, by any proceedings as yet devised, it is impossible to cure every case of vesico-vaginal fistula by a single operation. I will not repeat the reasons of this assertion, having already pointed out the complicated conditions with which we are called upon to deal; nor will I enlarge upon accidental circumstances, or the condition of the patient proving unequal to the requirements of the operation, and on other causes adverse to healthy union that we may encounter unexpectedly in the course of treatment.

Besides, the argument told against other operators—for instance, Sims, Bozeman and Simpson, as well as myself—for many of their patients, eventually and happily cured, were submitted to many operations before that end was attained.

But further, there was an unfairness in the argument as applied to my recorded cases, in that it was used loosely against the operation for vesico-vaginal fistula, and no account taken of the date and mode of proceeding followed in my earlier cases. The fact was kept back that many of the first attempts at cure I made, were at a period when almost every requirement and peculiarity of the operation had to be discovered; when, indeed, the operation was in its infancy. And again, it was not stated that some of the repeated operations were of a temporary nature; that, for instance, they consisted in the application of caustics, or of the actual cautery.

Were it worth while, I might go on to argue that if the operation for vesico-vaginal fissure often requires repetition, it resembles in this respect other surgical measures of general acceptance, and the results of which are quoted as successful, although not so on their first application. I will, however, content myself by urging that the value of the operation is to be measured by its results, and that the preliminary essays in developing a mode of operation, and slighter measures required

to meet accidental conditions, are not rightly reckoned in the statistics of an operation collected for the purpose of exhibiting its success. Admitting these principles to be correct, and applying them to the recorded cases, it will be found that, excluding exceptional lesions unavoidably demanding more than one operation, a considerable number—viz. nineteen—have been cured by a single operative proceeding conducted on the improved plans. In fine, in measuring the success, by my own cases, of the operation as now-a-days performed, it is particularly gratifying, inasmuch as vesico-vaginal fistulæ have been cured by it after several previous attempts by less matured proceedings have failed.

Case I. — *Vesico-vaginal fistula of three years' standing, the effect of the pressure of a stone in the bladder during labour: Operation: Cure: Remarks.*—Hannah B., æt. 48, mother of ten children, admitted into Boynton ward, St. Mary's Hospital, under my care, March 24th, 1853. She states that she was injured three years ago during a tedious labour. The waters broke on a Thursday morning, and she was not delivered till Saturday morning; the child was born suddenly, no medical attendant being present at the time. The funis broke and the placenta remained, and had to be removed by the introduction of the hand of a medical attendant. There was a great quantity of fæces accumulated in the rectum, and great pain in passing the motions after taking castor oil. She got out of bed on the ninth day and tried to pass her water, but could not; something seemed to fall down and prevent her; no water passed for two or three days, then "a little piece fell down about the size of a finger nail, and water has escaped ever since."

In July, 1852, she had another child, natural delivery: cannot recollect how long she was in labour; frequent constipation subsequently.

March 24th, 1853. Examination. There was a small fistulous opening near the os uteri; a large calculus could be felt within the bladder, which on being grasped by a pair of forceps through the urethra, began to peel by repeated applications of the forceps, assisted by the scoop, the whole was removed: the stone was two inches long, an inch and a half broad, and three inches and a half in circumference; weight two ounces and a half. The patient was under the influence of chloroform during the operation. There was a very slight laceration of the anterior part of the urethra, which was otherwise uninjured, so dilatable was it found to be. The bladder was injected four or five times with cold water, and no bleeding followed. She was much depressed by the chloroform, with feeble pulse and somewhat laboured respiration; had distinct arcus senilis. Ordered fourteen minims of liquor opii sedativus, fifteen minims of compound spirit of sulphuric æther, and an ounce of camphor mixture immediately; and this was ordered to be repeated after six hours.

8. 30, P.M Doing well; circulation recovered; countenance good: no sickness. To take two drachms of liquor ammoniæ acetatis, fifteen minims of spirit of nitric æther, fifteen minims of tincture of henbane, ten grains of

compound tragacanth powder, and an ounce of camphor mixture, every four hours.

April 5th. The fistulous opening is a mere point and very high up, small particles of calculi still passed through it. Actual cautery with small point thoroughly passed into the orifice. A catheter, with bag attached, introduced and retained to prevent the urine escaping at all through the fistula.

9th. An incision was made half an inch from the fistulous opening on each side, through the mucous membrane, so as to take off all tension from the opening, after which the actual cautery was applied.

16th. The opening is quite closed, and the incisions through the mucous membrane healing up by granulation; no water escapes but by natural passage.

19th. No urine escapes through the vagina: on examination with the speculum, there is a granulating surface about the size of a shilling in the situation of the opening; os uteri irregular and abraided: urine clearer.

28th. On careful examination, no fistulous opening could be found, and there was no evidence of any urine escaping from the vagina.

30th. Discharged cured.

Practical Remarks.—This case is interesting, as showing the mischief sometimes done during labour by the presence of a stone in the bladder; a circumstance not mentioned, to my knowledge, by any author. It also shows the importance of liberating the fistulous opening from any dragging of the surrounding parts, by incising the membrane before applying the cautery.

Case II.—*Vesico-vaginal fistula of seven months' standing: Three operations: Cure of the fistula: Subsequent death from effusion into the pericardium and left pleura.*—Mrs. T., æt. 25, consulted me March 18th, 1853. She gave the following history of herself:—

On August 1st, 1852, she was delivered of her fifth child; her labour was very tedious: the legs, body, and arms were born at half-past ten A.M., but the head was not born till half-past seven P.M. On the ninth day she was taken with violent pain; leeches were applied and a warm bath afterwards, on coming out of which, she found she could not hold her water, and has not been able to do so since, except when sitting or lying down, and then not for more than two hours.

On placing her on her hands and knees, I found an opening into the bladder about an inch and a quarter from the orifice of the urethra; this opening readily admitted the finger; on examination by speculum, I saw the mucous membrane of the bladder protruding through the opening, and a considerable quantity of phosphatic secretion oozing through. On passing the speculum further up, I brought the os uteri into view, and found it to have two deep fissures, and to be in a state of ulceration. I applied caustic to it.

20th. Examined again carefully, and applied caustic to the os and cervix uteri, and introduced a bent catheter, with India-rubber bag attached to catch the urine.

25th. Catamenia appeared after two months' cessation.

On April 4th, 2 P.M., present, Messrs. Wilkin, Borham, World, Trotter, and my son, I proceeded to operate:—I pared the edges of the fistula and applied three silver wires and clamps. I found, on passing my finger into

the urethra and examining the opening from within, that there were two points admitting the end of the probe not in apposition between the sutures, so that, in fact, I had not enough sutures. I therefore introduced two more under the clamps, and tied them over; this appeared to secure them perfectly. There was a good deal of hæmorrhage. She had ice before the operation, and afterwards she was ordered to take one grain of opium every two hours, and the catheter to be passed every two hours by the nurse. 9 P.M. Considerable hæmorrhage: applied ice within the vagina and the vulva.

5th. 9 A.M. No fresh hæmorrhage; urine full of dark blood; has had some refreshing sleep. 9 P.M. Syringed out the bladder and vagina with ice-water, and left a bent catheter, with bag attached, in the urethra.

6th. 9. A.M. Has not had a very good night. Some considerable quantity of clots from the bladder. Pulse quiet and soft; allowed her to sit up on the bed-pan, and pass the water herself. A large quantity of clots came away; and from this time she was easier. I ordered a mixture of infusion of roses, dilute sulphuric acid, and tincture of henbane. 10 P.M. No more hæmorrhage. Beef-tea and barley-water allowed.

7th. 9 A.M. Passed a good night. 2 P.M. Passed some large clots from the uterus, which produced fainting and prostration. 10 P.M. Very comfortable.

8th. 9 A.M. Very good night. No bleeding.

10th. An injection of warm water and salt brought away a good deal of scybalous matter; ordered some acid and bark mixture, and an opium pill at bed-time.

11th. Has passed a good night, and is very comfortable.

12th. Examined and found the upper stitches had all given way, and that a large quantity of phosphates had oozed out around them like mortar.

She gradually recovered her strength, and could hold the urine for three or four hours, except when walking. She returned into the country in May to recruit, and on January 31st, 1854, came up to town again, her health being very much improved.

She was placed under the influence of chloroform Feb. 6th, and I proceeded to dissect away the meatus urinarius from the symphysis pubis, and from its attachments laterally, so as to let it go quite back, and not to offer any traction on the rent of the bladder. There was a great deal of hæmorrhage, principally venous. The hæmorrhage being so great, I did not, as I intended, proceed to dissect away the bladder from the uterus, and from its attachments laterally, so as to let it be quite free from all traction before proceeding to the treatment of the fistula. The hæmorrhage was stopped by ice, and the little that took place afterwards was immediately stopped by fresh ice. The consequence of the operation was, that the urethra contracted well backward, towards the fistula, insomuch that the patient could control her urine until she asked for the bed-pan.

Feb. 12th. The catamenia appeared. She can hold her water even when she sneezes. I now determined to attempt the complete closure of the fistula, and on the 20th I proceeded with the following operation.

The patient being placed on her abdomen and the pelvis raised, the anterior lip of the os uteri was dissected from the bladder; indeed, it was divided into two portions horizontally, and then the incision was carried round to the right side of the vagina, so as to detach the bladder completely from behind up to the pubis; the same was done on the other side: then a needle, armed with a double suture of twine, was passed through the upper part of the opening (which was the size of a half-crown), and

then the edges were pared with the knife and scissors, and finally united by six sutures, fastened to two pieces of bougie. The operation took two hours and a quarter, during which time the patient was kept under chloroform. Not much blood was lost, considering the depth of the incisions which were made through the plexus of veins on each side of the urethra and bladder. Wine and ice were administered as soon as she recovered from the chloroform, and hot bottles applied to her feet; one grain of opium an hour afterwards, and a bent metallic catheter introduced, with a bag attached. 21st. Almost incessant sickness.

22nd. Very sick all night, sleeping an hour or two at a time; ordered some Bass's bottled ale, which stopped the sickness; had some fresh mutton chop minced up; ordered to continue the opium every six hours. 23rd. Much better, and no sickness.

24th. Discharge from the vagina very offensive; syringed it out with chloride of lime water; the bent catheter was completely filled with phosphatic secretion. It was cleaned out with acid, and reintroduced. No escape of urine from vagina. 25th. Injection of chloride of lime used—discharge of healthy pus, no escape of urine per vaginam. 26th. No sloughing from pressure; healthy discharge and no escape of urine; parts looking well; determined not to remove the sutures. 27th. Doing well; no escape of urine.

28th. A little shivering in the morning, headache, and sickness; a great deal of bile vomited. An injection ordered; great accumulation of fæces came away; no escape of urine.

March 1st. The sutures have nearly all ulcerated away; removed the rest. The union appears to be perfect.

6th. Is able to retain her water for three or four hours, and then passes it entirely through the urethra.

At half-past eleven, I was called to her suddenly, and found she had had a severe rigor. On examining the left side of the chest and heart, there was evidence of considerable effusion in the pericardium and pleura. Day by day she gradually sank, became delirious, and died on March 13th. Her brother, a surgeon, was present for some days before she died. Post-mortem examination not allowed.

So far as the fistula was concerned, this must be reckoned a successful case; death being due to an intercurrent disease.

Case III.—*Vesico-vaginal fistula, duration three months: Single operation; Cure.*—Deborah P., æt. 22, admitted under my care in St. Mary's Hospital Sept. 22nd, 1856. She stated that she was delivered of a still-born male child, on July 15th, with instruments, after being forty-eight hours in labour. Eight days after delivery she discovered that the urine all dribbled away, and "seemed to pass by the wrong passage." Upon examination, I discovered a fistulous opening close up to the os uteri, of such a size that an ordinary director would easily pass from the vagina into the bladder; all the urine passed through this opening and none through the urethra; in fact, she was never able to retain any in the bladder even for a short time. After attending to her general health I performed, on Oct. 15th, Bozeman's operation, using a silver button with three holes.

On Oct. 24th removed the button and sutures, and found most perfect union had taken place throughout the whole extent.

Nov. 8th. Perfectly cured. After a most careful examination I found all the parts firmly united, and no tendency to the slightest escape of urine, even after a long and tedious investigation.

CASE IV.—*Vesico-vaginal fistula, six weeks' duration: Single operation: Cure.*—Mrs. K., æt. 22. I was called to see this lady by Mr. Kisch, who gave the following history:—About six weeks ago she was confined of her first child. The labour was very long and tedious, and the head remained in the pelvis for many hours without making any progress whatever, so at last the forceps were applied, and after a good deal of difficulty she was delivered. She progressed without any unfavourable symptom till the sixth day, when she perceived that her urine was constantly escaping without her being in any way conscious of it, and that it did so in all postures equally. This continued without alteration, although her general health rapidly improved, and she was able to sit up in perfect comfort, in every other respect, at the usual period.

Upon examination, it was discovered that there was an opening which would admit a middle-sized bougie, situated just at the junction of the bladder with the urethra. The edges had not become at all callous, but were soft and yielding. Every drop of the urine escaped through the fistula.

Feb. 2nd, 1858. I proceeded to operate, assisted by Dr. Priestley and Messrs. Kisch, Nunn, and Philip H. Harper. The patient was placed in the usual lithotomy position, and a full-sized wooden bougie being introduced into the bladder through the urethra, so as to raise the fistulous opening well into sight, and to give a little support while the edges were being pared, I proceeded to split up the coats of the bladder, first dissecting a narrow strip of mucous membrane from the circumference of the fistulous opening, and turned the so dissected edges, without removing them, back into the fistula, thus obtaining a raw surface. Having done this, I inserted three double silk sutures at regular intervals through the split surfaces, and then tied them over two pieces of fine elastic bougie, about an inch in length, so as to bring the two raw surfaces into close, equal, and exact apposition; and by careful manipulation no portion of mucous membrane was allowed to get between.

On Feb. 8th the sutures had cut themselves out. When I syringed the vagina, as I was in the habit of doing daily, they came away in the basin. There had been not the slightest escape of urine up to this day: she was, therefore, allowed to leave off the catheter. After four days—viz. on the 12th—she was allowed to pass the urine herself every three hours. In two days she found she could go five, six, or eight hours at night, and then pass it naturally, none escaping involuntarily; but on beginning to dress or to suckle the child, some escaped from the urethra, which seemed to have partially lost its controlling power. On carefully watching the parts where the fistula was, and requesting her to cough, I could see a drop or two percolate through the united surfaces, just like the escape of perspiration from the pores of the skin. I applied caustic to this part, as the mucous membrane of the vagina had not yet covered over the parts operated on.

Thursday, 18th. The nurse saw a small escape from the vagina; but from that time till the 22nd, there had been no escape, except occasionally in the day a drop from the urethra, although the patient walked about the room.

March 2nd. There has been no escape, and on a most careful examination, I found no sign of an opening, and indeed the vaginal mucous membrane had completely covered over the parts, so as to leave no trace of the fistula. She walks about, up and down stairs, and the urethra has perfectly recovered its normal action.

Remarks.—This is a case of great interest, and offers some practical points for observation.

1. It will be noticed that the first operation succeeded. 2. The silk sutures were not removed, but were allowed to cut themselves out, after the plan recommended by Mr. Hayward, of Boston, United States. 3. The operation was performed only a few weeks after the lesion was discovered, and before the edges were callous or much inverted—a point I believe of the greatest importance; and I laid great stress on it when first consulted, and would not allow even the nursing of the infant to delay the operation. The wretched condition of any patient suffering from this lesion is at all times most distressing and loathsome; and in this case, where the young wife was of a cheerful temperament, clever, and fond of society, it was peculiarly trying, and calculated to break even her high and buoyant spirits.

Case V.—*Vesico-vaginal fistula, four months' duration: Nine operations: Cure.*—E. T., æt. 36, from Cirencester, was admitted into St. Mary's Hospital in February, 1855, and gave the following history:—In November, 1854, was taken in labour (first pregnancy), and after forty-eight hours instruments were used, and she was delivered of a still-born child. She went on pretty well until about the ninth day, when a good deal of pain in micturition came on, and she continued in great pain throughout the next three days, when suddenly, on the twelfth day, she felt something give way, her urine escaped through the opening, and she felt quite easy. From that period all her urine escaped this way. On examination per vaginam, I found a large opening extending transversely completely across the centre of the bladder, and wide enough to admit easily two fingers. The destruction of the tissue was so great, and the fistula so gaping, as to render any present attempt at closing it quite impossible. I therefore determined to adopt a plan recommended by Jobert de Lamballe—viz., to dissect the neck of the bladder from the pubis and its descending rami, thus allowing the anterior half of the bladder to fall backwards, and by so doing relax the fistula. Great success followed this operation, and in April, 1855, I pared the edges and brought them together by Sims' mode of treatment. But little success followed the operation, and she was allowed to return into the country for the improvement of her general health; and in April, 1856, she was delivered of a living child.

On December 9th, 1856, she was again admitted into the hospital, and I performed Bozeman's operation, with the result of closing eight-tenths of the opening. In five weeks I again operated, with but little success, as great sickness always followed the use of chloroform; so in three days I again operated without chloroform, and the result was closing the third of the fistula. After this she returned into the country.

December 7th, 1857. She was again admitted, and I performed Bozeman's operation; with the result of a further reduction in size of the fistulous opening. She then went again into the country.

On February 15th, 1858, she was re-admitted, and stated that since the last operation she had been able to retain the urine during the night, and some even during the day, whilst she was sitting quite still.

17th. I carefully denuded the edges of the fistula all round, and then brought the raw surfaces together by silk sutures and quills.

20th. She felt the sutures give way and the urine escape.

24th. She was taken into the operating theatre for the ninth time, and without chloroform I revivified the edges, and passing three silver wire sutures, closed them down with Bozeman's button.

March 6th. Button removed, and the whole opening found beautifully closed, and quite firm.

10th. On most careful examination, the fistula was found quite closed, and she can pass or retain her urine as well as she ever could before the lesion, and is consequently in good spirits and very grateful.

Remarks.—This case is very interesting, and requires little comment. It will be observed that she was three years under treatment for a large fissure, and that I performed nine operations upon her from first to last. The result is a good encouragement to persevere in the most difficult lesions. However, had the operation as at present improved been matured at the time of my earlier operations upon her, there would have been no necessity for such repeated attempts.

CASE VI.—*Vesico-vaginal fistula, four years' duration: Single operation: Cure.*—Mrs. N., Rotherhithe, æt. 28, consulted me in March, 1858, and gave me the following history:—"Four years and a quarter since was in labour of her first child from Wednesday evening till Sunday morning, when Mr. Peete was called in, and delivered her with forceps of a still-born child. Directly after she was made comfortable in bed she found the urine escape through the vagina, and from that time it has always passed involuntarily except when lying on her back. Three months after the accident she went into Guy's Hospital, and was there for nine weeks. She then went to a hospital for diseases of women, and was there recommended a large blister on her back, so as to make a sore; but as her husband thought such a remedy could not heal the hole in her bladder, she did not apply it, and left off attending the hospital. Mr. Peete had repeatedly advised her to see me."

On examination, I found a small fistulous opening at the fundus of the bladder, close up to the os uteri, which was also much torn. The fistulous opening was about the diameter of an ordinary pocket-case director.

On March 3rd I proceeded to operate, assisted by Messrs. Nunn, Peete, Philip H. Harper, and my son, A. Boyer Brown. Placing her on her knees and hands, without chloroform, I carefully pared the edges, removing as little mucous membrane as possible, and then performed Bozeman's operation; but instead of bringing the edges together transversely, as usual, I brought them together horizontally.

13th.—I removed the button to-day, and found the opening perfectly and entirely healed.

This case was altogether most satisfactory and pleasing, one operation having sufficed to cure it. She has subsequently been confined, and remains quite well.

From Notes by the Clinical Clerk, MR. CHISHOLM.

CASE VII.—*Vesico-vaginal fistula: Duration six weeks: Single operation after preliminary treatment: Cure.*—Ellen Welch, æt. 25; married. Admitted into St. Mary's Hospital March 26th, 1858. Six weeks ago she was in labour with her first child, when she sent for a midwife. She was in labour fifty-two hours, with good pains, and finally was delivered by a surgeon with instruments. A fortnight after she noticed that she could not retain her urine, which was constantly dribbling away, in greater quantity when she stood up than when she was in the recumbent or sitting posture. When admitted, Mr. Brown removed a large slough, which was to be seen protruding from the vulva.

Upon making an examination with the speculum, it was found that the lesion was far up in the vagina, just anterior to the os uteri, where a transverse fissure, about half an inch long, was to be seen, having a white appearance, indicating that a slough had yet to come away.

March 27th. The perinæum had not been torn, and in order to facilitate the intended operation, Mr. Brown made an incision downwards and obliquely to the right side, into the vagina, and dressed it with oiled lint.

28th. The margins of the incision have thrown out lymph. Dressed daily with oiled lint.

10th. The incision has quite healed, but the os uteri is still much abraded.

21st. Mr. Brown performed Bozeman's operation to-day, using a leaden button instead of the silver one.

May 1st. Mr. Brown removed the shot and button and two of the sutures to-day, and found that the fistulous opening had entirely healed. The urine which was supposed to have escaped the other day, must have oozed out by the side of the catheter. For the last three or four days she has been able to retain her urine and pass it naturally, the catheter not being requisite. Nearly a pint of urine has been voided at a time.

6th. Got up yesterday for the first time.

14th. Discharged quite cured. Able to retain or void her urine at pleasure.

Remarks.—The object with which I enlarged the vaginal opening in this case, was to get a better view of the parts. The pelvis was so deep, and the fistula so high up, that I felt it would be far more beneficial to enlarge the vagina if possible, and by making the incision obliquely I ran no risk of ultimately interfering with the sphincters, whilst my intended operations were much facilitated. It was again an advantage, that I was able to operate in this case so soon as the sloughs which formed the fistula had separated. The parts were thus in a favourable state. The hæmorrhage which ensued on the second day made me dread lest the parts should not unite, but by controlling it with gallic acid, it seemed to have no detrimental effect beyond lengthening her convalescence somewhat.

Case VIII.—*Vesico-vaginal fistula, two months' duration: Two operations: Cure.*—Margaret Dancer, æt. 26, admitted into St. Mary's Hospital, under the care of Mr. Brown, May 15th, 1858.

In March last was taken in labour with her first child, and after a continuance of three days and nights, was delivered of a still-born male child, without the use of instruments. Her urine was drawn off for two days after delivery, as she was not able to void it herself, and after that period it dribbled away from her as she lay in bed.

Upon examination it was found that there was a transverse opening about an inch long, situated at the neck of the bladder.

After the usual preparation, she was, on May 19th, operated upon by Mr. Baker Brown, who performed Bozeman's operation, closing the opening with three silver sutures and leaden button.

29th. To-day Mr. Brown removed the button and silver wires.

June 8th. She was carefully examined to-day by Mr. Brown, in the presence of Mr. Talbot and others, and he found that the whole of the opening had healed, with the exception of a small portion which would admit the point of an ordinary director.

13th. States that her urine is constantly dribbling away, and she is not able to retain any in the bladder.

16th. After the usual preparatory treatment, she was again operated upon. Mr. Brown used three sutures and a leaden button, and by them brought the parts well in apposition.

She went on well, and on June 26th Mr. Brown removed the button and sutures. He found the parts firmly healed, and no trace of any fistula remaining. Dr. Bozeman and other gentlemen were present, and were satisfied that the cure was complete.

July 7th. Discharged cured. Whilst in the erect position some drops of urine escape from the meatus urinarius, which was itself torn at the mouth, probably by the catheter; should she not recover in a few weeks, I propose closing the tear by a silver suture.

Remarks.—The opening in this case was a large one, and I fancied at the time it might have been better to have inserted four sutures, but as the three appeared to close it, I was content. However, the chloroform made her very sick, and probably the straining from this cause forced a drop of urine between the edges of the fistula. The success was great in closing so nearly, at the first operation, so large an opening. I have not heard from her since she was discharged; it is fair to conclude, therefore, that the slight enlargement at the mouth of the meatus has contracted, and that she is now perfectly recovered even from that slight annoyance.

Case IX.—*Vesico-vaginal fistula, sixteen months' duration: Single operation: Cure.*—A. T., æt. 25, married, was taken in labour on February 24th, 1857, and the pains remained very severe indeed until 2·30 P.M. on February 28th, when the head of the child was born, but it was 7·30 P.M. before the body could be delivered. During this period the catheter was attempted to be used several times, but unsuccessfully. She herself is a small woman, with an average pelvis, but the child was a very large one. It was born alive, but lived only two days. After the child was born, very severe pain in the vagina remained, and the next day the urine was much mixed with blood. This continued for a fortnight, when the urine was retained, and she could not pass any for twenty-four hours. On being lifted out of bed it gushed forth, and from that time has always come away without her knowledge. She cannot retain the smallest quantity either when sitting up or lying down.

She was recommended by Mr. Bermingham to apply to me, and was admitted into the "London Surgical Home" on June 9th, 1858.

She stated that she had another child on February 25th, 1858, without any increased effect upon the parts.

On examination, an opening was found to exist which would admit easily a couple of fingers, extending obliquely across the bladder, and involving the anterior lip of the os uteri. The circumference of the opening was smooth, and not much thickened. There was also a slight tendency to prolapsus of the anterior wall of the vagina. The vagina itself was soft, and easily dilatable. The internal coat of the bladder was healthy. She was ordered an aperient medicine, and on June 10th I performed Bozeman's operation. The opening was so extensive as to require a leaden button with eight holes; and some of the sutures were inserted through the anterior lip of the os itself. There were present at the operation Messrs. Nunn and Philip H. Harper, Dr. Norton, Messrs. Bermingham, Wratislaw, Hubbard, Giles, and my son, A. Boyer Brown.

She went on very well, suffering no pain and having no escape of urine;

and on June 22nd I removed the button and sutures in the presence of Dr. Bozeman of Montgomery, Dr. Hayward of Boston, and Messrs. Nunn, Philip H. Harper, and Wratislaw. The opening was firmly healed. Not a trace of fistula remained.

29th. She was discharged quite well, able to hold her water as long as she pleased, and having no difficulty in emptying the bladder. She herself compared it to being in a dream. She could hardly realize the fact of being perfectly cured with so little suffering.

Remarks.—This was a most satisfactory cure, for the opening was the largest one I had yet been called upon to treat. The operation was facilitated by the very dilatable state of her vagina. The size of the opening had prevented the edges becoming much hardened, which also was somewhat in her favour. I have since received a letter from Dr. Hall Davies (who had frequently seen her before she came under my care, and expressed his doubts about its being possible to cure her), in which he expresses his great pleasure at the perfect success of the operation.

Dr. Davies thus wrote in a communication to the *British Medical Journal* (April 2nd, 1859) :—

"I am happy to be able to state that the above case of A. T., about which I had been consulted previous to operation, and which was discharged cured by Mr. Baker Brown on June 29th, continues cured, on November 30th. The husband then informed me that his wife continued quite well, and was never in more robust health, and that she had not the slightest return of her former complaint."

Case X.—*Vesico-vaginal fistula: Two operations: Cure.*—M. A. S., æt. 35, married, the wife of a missionary in India, was confined of her first child in April, 1855, after a tedious labour of three days. She quite recovered, became pregnant again, was taken in labour on the 10th April, 1857, had heavy pains until the 12th, when forceps were used, and she was delivered of a large male child. She went on well for three days, passing her urine naturally, and having no unfavourable symptom. She then had great pain and swelling of the vagina, and on the sixth day after the labour her urine began to escape without her knowledge, and a few days subsequently a large slough escaped from the vagina. For some weeks she could not have her bed made, but she gradually recovered her health, without having, however, the slightest control over her urine, which escaped in all postures alike. In September, 1857, she consulted me, and I performed an operation upon her, but from the tender and contracted state of the vagina, and the peculiar situation of the opening, I was only able to close a portion of it.

She was admitted into the "London Surgical Home" on June 11th, 1858. On examination, I found that the opening now was large enough to admit a finger, and situated so close to the anterior lip of the os uteri as to involve it. From the cicatrization of the walls of the vagina the opening was drawn as it were into a sulcus, rendering it very difficult to get at. Her general heath was good.

June 12th. She was placed under chloroform, and I proceeded to perform Bozeman's operation. I was obliged to pare a portion of the os itself, and had great difficulty in passing the needles through, both on account of the hardness of the os, and the depth at which the opening was situated. However, I inserted five silver-wire sutures, and putting on a leaden button got the edges into good apposition. There were present Drs. Priestley and Norton, Messrs. Nunn, Philip H. Harper, Wratislaw, Spencer, Hubbard, Giles, and my son, A. Boyer Brown.

June 13th. Good deal of sickness, but otherwise comfortable. She went on well and had no escape, and on June 24th I removed the button and wires in the presence of Dr. Bozeman and others. There was some little difficulty in expanding the vagina sufficiently. A small quantity of urine escaped out of the urethra and flowed into the vagina, thus appearing as though it escaped out of the fistula. However, I thought it better not to examine minutely, so I replaced her in bed, and introduced the bent catheter again, and left it in the bladder.

July 7th. I removed the sutures and found everything well and sound.

Remarks.—I had great difficulty in dealing with this case, owing to the cicatrization of the vagina having drawn the fistula out of reach to a great extent. It will be noticed that I passed some of the sutures through the os itself, but beyond the difficulty of pushing the needle through, this does not alter the character or progress of the case. Feb. 1861. This lady has continued well.

Case XI.—*Vesico-vaginal fistula, fifteen months' duration: Single operation: Cure.*—C. G., æt. 33, admitted into St. Mary's Hospital on June 28th, 1858. She has had four children, always with tedious labours, and twice required instruments. Her last labour began on Monday night, and she was delivered on Thursday morning by craniotomy. Eight days after delivery she perceived that her water dribbled away, and she has not been able to retain any since that day. It is now fifteen months since. She has been under various gentlemen, and has undergone several operations of one kind or other, including the actual cautery.

On examination, I found an opening which would admit the top of the little finger, at the upper part of the vagina, close to the right side of the os uteri, through which the urine very freely escaped. The edges were tense and callous.

Having undergone the usual preparatory treatment, on June 30th I proceeded to operate. Dr. Hayward, of Boston, administered ether; Dr. Bozeman, of Alabama, U.S., was also present. I pared the edges of the fistula in a longitudinal instead of a transverse direction, on account of its position; and from its close proximity to the os I was compelled to pare this also. I inserted four silver-wire sutures, one of them through the anterior lip of the os. I then put on the leaden button as usual.

July 8th. Passes her urine voluntarily and with little difficulty.

10th. I removed the button and two of the sutures. The fistula is perfectly healed and is very sound. She retains her urine and passes it voluntarily. There is not a trace of the wound left; in short, she is perfectly cured. I have since heard from Mr. Edwards, who recommended her to be under my care, that she was pregnant at the time of the operation. She continues perfectly well. Feb. 1861. She has been twice delivered at the seventh month, and is quite well.

Case XII.—*Vesico-vaginal fistula, five years' duration: Single operation: Cure.*—Mrs. Mc., æt. 26, married, mother of three children. Her two first labours were rather tedious, but presented nothing remarkable. Five years since, whilst living in Ceylon, she was confined of her third child. The labour lasted for a couple of days before she sent for her medical attendant. He discovered that it was an arm presentation, and after several attempts succeeded in turning the child and delivering. Her urine escaped immediately after the labour was over, and has continued to do so ever since. She states that she suffered so much from swellings and pain in the vagina that it was nearly twelve months before she was

able to sit up; at the end of that period she had an operation performed in Ceylon, which she describes as consisting "of cutting the opening and sewing it together;" she went on well until the fifth day, when the urine escaped. A few days after this, sutures were again inserted, but the hæmorrhage was so free that the fistulous opening was only partially closed. The actual cautery was now used after every menstrual period. This treatment was continued for a year, when she came over to England for advice, and consulted me, but for various reasons did not come back that I might do anything for her. She consulted other gentlemen, who used the cautery and inserted sutures three times. Getting tired, she applied to another, who used the cautery, and whilst the edges were raw inserted sutures. He repeated this procedure, she believes, eight times, and succeeded in making the opening smaller, but not in healing it. She applied to the "London Surgical Home" on July 17th, 1858. She cannot retain any urine, either sitting up or lying down, and it is constantly running from her. On examination, an opening was found which would admit a full-sized bougie easily, situate in the base of the bladder, close up to the os uteri, which was closed, and the fistula ran into the cervix. The edges were rather callous, but not everted. The coats of the bladder were healthy: the vagina dilatable. There was a constricting band of cicatrix which extended from the lateral wall of the vagina to the edge of the opening.

After the usual preparatory treatment, she was placed under chloroform on July 19th, and I proceeded to perform the usual operation in the presence of Drs. Bozeman and Vinen, Messrs. Nunn, Philip H. Harper, Wratislaw, Spencer, Hubbard, Giles, and Royston. I pared the edges freely, and was obliged to insert some of the sutures through the cervix itself, which required a good deal of force, as it was very hard. It required five sutures, and the leaden button used was hollowed out a little on one side so as not to compress the os.

July 28th. I removed the button to-day, in the presence of Dr. H. Bennett, and Messrs. Nunn, Philip H. Harper, and Hubbard, and found the fistula perfectly healed. The line of union is so perfect as scarcely to be recognisable except from the position of the sutures.

August 5th. I removed the sutures, and found that the cure was quite complete. She can retain and pass her urine at pleasure, but menstruates per urethram.

From Notes by Mr. Talbot, *Resident Obstetric Medical Officer.*

Case XIII.—*Vesico-vaginal fistula, seven months' duration: Two operations: Cure.*—J. P., æt. 20, admitted into St. Mary's Hospital, under Mr. Baker Brown, on October 14th, 1857.

Was delivered in March last by instruments, after a long and tedious labour, in the course of which violent convulsions came on. She suffered great pain as well as soreness in the vagina after the labour, and her urine escaped without her knowledge. She has not been able to get out of bed since.

On examination, there was found a fistulous opening into the bladder, which would admit three fingers, and the loss of structure was very great. In addition to this, the edges of the fistula were puckered up, and very tense, and it was drawn quite behind the arch of the pubis. All the urine escaped involuntarily, and in all positions alike. Mr. Brown considered that it would be useless and impossible to do anything for

the closure of the fissure until the parts could be placed in a more relaxed state, so as to allow the edges of the fistula to be brought into contact. Therefore, with this object in view, on October 24th he detached the urethra and neck of the bladder from their attachments to the rami of the pubis. By this procedure the walls of the bladder, in which the opening was situated, were much relaxed. There was very little bleeding. The incisions were stuffed with oiled lint, and she was put into bed with a catheter introduced into the bladder. She recovered gradually from this operation, and Mr. Brown determined to attempt the healing of the fistula. On December 17th he therefore performed Bozeman's operation upon her, but the difficulty of getting to the parts was still very great. The urine appeared through the fistula again on the following day. Mr. Brown determined not to do anything more for her until she had been into the country for a few months, so as to improve her general health. She was therefore discharged on January 11th, 1858.

She was re-admitted on July 22nd, 1858, and stated that the inconvenience and distress were as bad as ever, and that no water could be retained in any posture.

On examination now, in the presence of Dr. Bozeman, it was found that the fistula was about an inch and a quarter in length, extending in an oblique manner from right to left, passing close to the os uteri, which was closed; and she had not menstruated since the accident occurred. One of the silver wire sutures used in the former operation was found lying bright and firm in the edges of the fistula, without occasioning any inconvenience. The orifice of the urethra was drawn back three quarters of an inch from its ordinary situation, as the effect of its detachment from the pubis in the first operation. General health good.

On July 27th, she was placed under chloroform, and Mr. Brown proceeded to perform Bozeman's operation, but in the lithotomy position. Some difficulty was experienced, in consequence of the edge of the fistula breaking down under the passage of the needle, and after many attempts the sutures were passed satisfactorily from before backwards. A small artery was wounded during the paring of the edges, but it was easily restrained by torsion. A leaden button was used which was slightly hollowed out, so as not to compress the os uteri. It required seven holes, as the opening was so large as to require seven sutures. The operation occupied two hours and a half.

August 4th. Mr. Brown removed the button to-day, in the presence of Dr. Inglis of Perth, and his brother, Mr. Inglis, Mr. Talbot, and other gentlemen. The cure was quite perfect, and the line of union was not recognisable. She can hold her urine as long as she is allowed.

11th. I removed the remaining sutures in the presence of Dr. Hennig of Leipsic, and others, and found the parts very sound and most satisfactorily healed.

Case XIV.—*Vesico-vaginal fistula, ten years' duration: Single operation: Cure.*—I. I., æt. 46, married; mother of ten children; was admitted into St. Mary's Hospital October 10th, 1858. About ten years ago she was delivered of her tenth child. She was thirty-six hours in labour, and was ultimately delivered by instruments. Five days afterwards she strained very much whilst attempting to pass urine; and in a short time, while lying in bed, she fancied she was flooding, from a great quantity of urine escaping per vaginam. From that time, she had never been able to retain her urine when upright, nor, at first, when even lying down. All her

labours had been very prolonged; instruments were used on four occasions.

Oct. 13th. On examination, the opening was found to run horizontally, immediately anterior to the os uteri. The usual operation was performed, but in this case I experienced a little difficulty, as the silver sutures, six in number, implicated the os.

Oct. 22nd. Sutures removed, fistula quite healed.

Case XV.—*Vesico-vaginal fistula, seven months' duration: Single operation: Cure.*—Rachael K., æt. 22, admitted into St. Mary's Hospital Oct. 15th, 1858. She was delivered of her first child on March 25th; the labour was allowed to continue three days without interference, after which she was delivered of a still-born male child. Her urine ran away from her immediately after the labour, and had continued to do so down to her admission. She was treated at the Leicester Infirmary a month after her confinement, and her impression is that, whilst under examination, some operation was performed on her, but whether cauterization, or of what nature it was, she could not say. It did not produce any benefit. The fistulous orifice was about the size of a sixpenny-piece, and was situated in the upper wall of the vagina, about half an inch in front of the os uteri. After the usual preliminary treatment, I operated on October 27th after Bozeman's plan. The opening was brought together transversely, and six metallic sutures were used.

November 6th. Sutures and button removed, and the wound was found perfectly healed in its whole extent.

Case XVI.—*Vesico-vaginal fistula: Duration nearly two years: Single operation: Cure.*—Charlotte H., æt. 27, admitted into St. Mary's Hospital October 15th, 1858. She was a native of the same village as Case XV., and had been under the same medical treatment.

She was brought to bed of her third child in November, 1856, and was three days and nights in labour. She was then delivered by craniotomy. Seven days afterwards, she first perceived her urine running away. No treatment was adopted. She again became pregnant, and was delivered in May of a living child. The labour lasted three days this time also. The symptoms have not been worse since the last confinement.

The fistula was of small size, near the os uteri. On October 27th, I operated, and on paring the edges found that, although the fistula had encroached upon the mucous membrane of the os, it had not penetrated into the cavity of the cervix.

The wound was brought together longitudinally with four silver sutures.

Nov. 6th. Button and sutures removed, fistula quite healed.

Remarks.—In reference to this and Case XIV. I would say that I do not attach so much importance as Dr. Bozeman is inclined to do to the direction in which the wound is sewn together. That gentleman always contrives that the line of suture should run transversely across the vagina; but from my experience, longitudinal wounds unite just as favourably.

Case XVII.—*Vesico-vaginal fistula: Repeated operation by cauterization and silk sutures: Success on the first application of Bozeman's plan.*—Sarah M., æt. 33, married, admitted into St. Mary's Hospital on September 20th, 1853. She had had one child, and stated that her period of gestation extended over nine months, and that she was delivered by

the aid of instruments of a large still-born female child, in the tenth month of utero-gestation. The labour was very long and severe, lasting four days and nights; and no urine passed during the last three days, neither was any catheter used. During the labour, she felt something give way, with a great deal of pain, and she entirely lost all control over the sphincter ani. On the second day after the labour, her urine escaped involuntarily in small quantities with each inspiration.

Upon examination, the perinæum was found completely lacerated, the rent also extending some distance along the posterior wall of the vagina. In addition to this, the vagina was lacerated transversely across, exposing a large vesico-vaginal fistula, admitting easily three fingers.

The actual cautery was applied on December 2nd and 29th, 1853, and on January 3rd and March 28th, 1854.

The operation with silk sutures was performed on December 21st, 1853, and on February 1st, March 15th, and April 19th, 1854. The last operation, April 19th, was the most successful of all, and so far closed the fistula that it would barely admit a probe.

August 9th. She was operated on with silver sutures without benefit. Subsequently, I was induced by favourable reports of other cases to lay open the whole of the urethra from the fistulous opening, hoping that it would have healed by granulation. In this, however, I was completely disappointed, and the patient was discharged from the hospital not only unbenefited, but actually much the worse for the last operation. She was re-admitted on Oct. 29th, 1858; and on examination, it was found that the posterior half of the urethra was obliterated by the pressure of a hollow and pierced wooden-ball, which she had worn for the purpose of conducting the urine into a bag, which she always wore. Consequently, all the urine escaped from the fistulous opening, now of the size of a shilling.

November 3rd. I operated in the following manner. The edges of the fistula were freely pared, then the urethra laid open, and the edges also pared; a gum elastic catheter was introduced, and left in whilst the divided parts were brought together with eight silver sutures, and these sutures closed down with Bozeman's leaden button. I hoped thus to restore the urethra at the same time that the fistula was closed.

Nov. 17th. The button, or rather long plate, was removed; and all was found to be firmly united, except about an inch of the end of the urethra, arising from one shot having been knocked off by repeatedly passing the catheter. She was, however, able to hold all her urine during the day; and it was only when very soundly asleep at night that she lost any.

Nov. 24th. Three more silver sutures were put in, and a projecting notched plate applied so as to close all the urethra, except the meatus itself.

December 4th. The button was removed, and the parts were all firmly united. She is able to retain her urine within the bladder for an hour at a time.

Remarks.—This case is worth mentioning as one of the most extensive fissures, perhaps, ever closed by a single operation, and as decisively showing the great advantages of Bozeman's plan of operation, which succeeded in closing a fissure four or five times as large as that which had been repeatedly treated by the older methods without success.

The complication introduced into the case by the division of the urethra, caused it to present some resemblance to some of my former cases, in which the anterior portion of the urethra had suffered from the same injury which had produced the vesico-vaginal fistula.

CASE XVIII.—*Vesico-vaginal fistula of seven years' duration: Twenty-five operations: Ultimate cure.*—Eliza Z., æt. 29, married, in July, 1851, was delivered by instruments of her first child, after a labour of three days' duration. Twelve hours after labour, her urine escaped involuntarily, giving her great pain. On April 29th, 1852, she was admitted into St. Mary's Hospital. On examination, the vagina was found to be almost obliterated by cicatrizations. On the left side, the finger passed into the *cul-de-sac*, at the end of which was felt the os uteri. Across the other part of the vagina was a large fistulous opening into the bladder. On May 5th I operated upon her, and closed a large portion of the fistula. She then left the hospital; and, becoming pregnant, aborted in the third month. Five weeks afterwards, she was re-admitted; and the second, third, fourth, fifth, and sixth operations were performed upon her, in addition to the actual cautery being used. During these repeated operations, the bands of cicatrization were cut through, and the os uteri turned into the bladder, as it appeared easier to close the fistula by so doing. She then left the hospital; and the seventh, eighth, and ninth operations were performed at her own house. She afterwards went to Dover to recruit her strength; and when she returned, the tenth operation was performed at her own house. In 1854, she returned to the hospital, and the eleventh operation was performed. On November 1st and Dec. 24th, 1856, she had the twelfth and thirteenth operations performed at her own house. On February 3rd, 1857, she was readmitted into St. Mary's Hospital, and the fourteenth operation was performed. After this, she went into another hospital; and in August, was operated upon with harelippins, and in November, with common sutures. She was readmitted into St. Mary's on April 5th, 1858, and I performed the seventeenth operation. On April 28th, the eighteenth operation was performed. On May 19th, Bozeman's operation was performed, making the nineteenth. This did not succeed; and she was discharged on June 20th, to recruit her general health.

She entered the London Surgical Home on July 3rd, 1858. There still remained two openings; one would admit a No. 12 bougie situated near the urethra; the other was a small one, barely admitting a probe. There was a strong band of adhesions, extending from the walls of the vagina to the point of the larger opening.

July 6th. Bozeman's operation was performed, and the adhesions divided. The urine escaped on the fourth day.

July 24th. I freely divided the bands of adhesion, and plugged the vagina with a large sponge tent covered with oiled silk. This was changed every other day.

August 3rd. On proceeding to operate on this day, it was discovered that the smaller opening communicated in a circuitous manner with the under edge of the larger one; I therefore opened the track, and made the two openings into one. The vagina was ordered to be regularly plugged with full-sized sponge tents.

August 17th. Bozeman's operation was performed, using a leaden button and six sutures. The urine escaped on the seventh day. On removing the plate, it was found that one of the deep incisions had laid open the cervix uteri about an inch from the os, which was still in the bladder. Through this opening a uterine sound could be easily passed into the uterus.

October 3rd. Bozeman's operation was performed with five sutures, with the effect of reducing the opening to the size of a pin's head.

November 2nd. Bozeman's operation was performed; but the urine escaped on the same night; and on

November 4th. The operation was re-performed. The button remained on nine days, but still there was a slight escape of urine through a very small opening. However, the parts had a healthy granulating appearance; and she was recommended to remain quiet in bed; and very little urine escaped that night. None escaped on the following day and night. From this time she lost none, and freely passed it at pleasure.

November 28th. A most careful examination found every part firmly united, and no sign of the old fistulous opening.

January 20th, 1859. She now menstruates through the vagina, which she had not done for years: and her vagina was of the ordinary size. Her health and spirits were good, and she was making a most cheerful and inspiriting nurse.

Remarks.—This case is full of interest, and exhibits an amount of courage and perseverance on the part of the patient which is beyond all praise. Such a series of operations is not likely to occur again, as the new method will enable us to grapple at first more successfully with the difficulties.

Case XIX.—*Vesico-vaginal fistula, four years' and a half duration: Three operations: Cure.*—Jane B., aged 26, a very short, small-made woman, was admitted into the London Surgical Home on October 20th, 1858. Mr. Humphreys, of Shrewsbury, kindly sent this patient to me.

She said that she had been delivered four years and a half previously with instruments after a labour of thirty-six hours' duration. For the first few days she passed her urine properly: and nine days afterwards she had retention, which necessitated the use of the catheter. After a good deal of pain for three days, her urine come away with a gush; and since that time she had never been able to retain any portion in any posture. It always flowed away from her without the slightest control. She had undergone about twenty operations unsuccessfully.

On examination, an opening was found of the size of a half-crown situated close up to the os uteri. There was a great deal of spasmodic action about the bladder, so that the mucous membrane of its cavity constantly protruded through the fistula, and filled the vagina, looking like a vascular tumour. The edges of the opening were thin and soft. The vagina was a good deal contracted; and one band of cicatrization was thick and strong, and drew the lateral wall of the vagina towards the angle of the opening, and formed an obstacle to the apposition of the edges.

I determined to endeavour to reduce the size of the fistula before dividing the bands of adhesion; and therefore, on Nov. 2nd, proceeded to perform Bozeman's operation. The patient having had chloroform, and being placed in the lithotomy position, I pared the edges of the fistula, and succeeded in removing the whole circumference in one piece. The mucous membrane of the bladder, which protruded very much during this part of the operation, was held up with spatulas. Seven iron-wire sutures were then inserted, and a leaden button was put on, and the operation was completed in the usual way.

November 3rd. She went on well until November 11th, when a little urine escaped.

November 15th. I removed the button, and found the greatest portion of the opening firmly healed. The opening which remained was the size of one wire, which cut itself nearly out, and thus formed the fistula.

December 9th. The parts having become firm, I freely divided all the constricting bands; and the vagina was plugged with oiled lint.

December 12th. The lint was renewed, and large sponge tents were ordered to be introduced every day.

December 24th. The divided parts having healed, Bozeman's operation was this day performed. It required three sutures and a leaden button with three holes, and silver sutures.

She was very sick after the operation, and became so exceedingly irritable, that she would not remain quiet, and was constantly withdrawing the catheter herself; so that on the seventh day after the operation, there was again a slight escape.

January 24th, 1859. I again performed Bozeman's operation. The patient this time was placed on her hands and knees, and did not have chloroform. It required again three sutures and a leaden plate with three holes. She was not sick this time, and remained much more steadily under control. Everything went on well, and there was no escape whatever.

February 5th. The button was removed, and the whole fistula was found firmly healed and the parts quite sound. She could retain her urine quite well, and passed it with perfect command; and in a week left the institution quite well.

Remarks.—The failure of the first operation here, I am convinced, arose entirely from the iron wire cutting itself out up to the line of union; and as I have observed the same thing to occur in other cases where there was any tension from constriction after laceration of the vagina, I now always employ silver wire.

Case XX.—*Vesico-vaginal fistula: Two operations: Cure.*—The previous history of the case was furnished by Dr. J. Hall Davis, who placed the patient under my care. "M. D., æt. 30, a woman of stout habit, good conformation, and previous good health, was taken in labour of her eighth child March 1st, 1856, at 9 P.M. Her midwife was sent for at 10 P.M.; and arriving soon afterwards, found the liquor amnii already escaped, the breech at the brim of the pelvis, the os uteri dilated to the size of half a crown; active labour was present. At 4 A.M. (March 2nd), the orifice of the uterus was fully dilated, and the breech had reached the pelvic outlet. The pains continued strong throughout the night; and, in consequence of the pressure exerted on the neck of the bladder, the midwife had found it necessary to empty that organ with the catheter.

"At 11 A.M. (March 2nd), no progress having taken place notwithstanding ample parturient action; the parts, moreover, having become heated and swollen, the patient being much fatigued with fruitless efforts, I was sent for and arrived shortly afterwards (half-past 11 A.M.). I found the breech at outlet, swollen, and impacted, the parts heated. I introduced the catheter and removed a little urine, and having satisfied myself that another mode of delivery was impracticable, I proceeded to deliver by evisceration, which I effected through the outlet of the child's pelvis. Thus the abdomen was diminished, and very moderate traction completed the birth. The child (a female) was large, swollen, but not putrid. I gave it as my opinion that the child should have been delivered earlier, with the necessary precautions. The delivery of the child occupied rather more than an hour, and the placenta, being thrown off spontaneously into the vagina, was removed soon afterwards. In the course of the following days the patient was the subject of acute peritonitis, which was treated by

application of leeches to the abdomen, hot linseed poultices, and turpentine stupes. Vaginitis also ensued, and sloughing of the portion of the vesico-vaginal septum, leaving an opening of the size of a five-shilling piece. For the latter inflammation and its consequences, warm water with a weak solution of chlorinated soda was employed as an injection, and the catheter was resorted to till the fistulous opening occurred. At the end of three weeks the patient was up and about. After this I merely suggested frequent ablution with tepid water, injections into the vagina to prevent calcareous deposits on the mucous coat. The patient being of very cleanly habits, this was properly attended to.

"I hoped that, in the course of time, such an amount of contraction of the fistula would take place as would warrant some attempt being made by surgical operation to close the aperture. I was not disappointed in this, and becoming subsequently acquainted with the success of Dr. Bozeman's operation, founded, but greatly improved, upon that of Marion Sims, of New York, and having already witnessed one case of complete cure of a large urinary fistula (A. T., case ix.), on which I had been consulted before operation, I was induced to place this case under Mr. Baker Brown.

"The above M. D. was a patient of one of the Lying-in Charities under my care; and her case of fistula, tabulated in the statistics of my work (table XI., p. 275), is the only instance of a urinary fistula which has occurred to me in any of the charities under my direction, comprising 7302 deliveries."

The patient was operated on November 1st, 1858, at the London Surgical Home, in the presence of Dr. Davis and several other practitioners. The edges of the opening, now reduced at least three-fourths of its original dimensions, extending transversely, situate at the junction of the urethra and neck of the bladder, were first pared, the patient being under anæsthesia. The edges were then brought together by silver wires, silk threads, previously passed through, being used as their conductors, and then removed. The two halves of each wire were then passed through a hole in an oblong plate of lead, suitable to the opening to be covered. This plate was then with a special instrument pressed firmly upon the opening, the wires made tense. A shot, perforated by one aperture, was then passed over the two halves of each wire, pressed firmly up to the plate, and nipped with a well-adapted pair of pincers, so as to obliterate the aperture of the shot upon the wire. Thus the plate was fixed securely in its place, and the surplus wire being cut off, the operation was complete. The patient was operated on in the position for lithotomy, and the vagina was well dilated by a special speculum and by tenaculum forceps, held by steady assisting friends. After the operation the patient was placed on her side, with an elastic catheter in the bladder, attached to a caoutchouc tube and bottle; the bowels were constipated by opium, having, previously to the operation, been well opened by aperients. Full diet was ordered.

On the eighth day the plate was removed, and a linear cicatrix was visible in place of the former aperture: no leakage whatever observable.

Two days afterwards, it was evident that a minute aperture yet remained, and a second operation was performed, from which Dr. Davis was unavoidably absent. The cure was now quite complete.

CASE XXI.—*Vesico-vaginal fistula, five months' duration: Two operations: Cure.*—T. C., æt. 19, married, was taken in labour on October

29th, and was delivered with forceps on October 31st, after a hard labour. There was a good deal of irritation of the bladder afterwards; and in a few days all her urine came away without any control on her own part, and continues to do so now in all postures alike.

She was admitted into the London Surgical Home on December 2nd, 1858. An examination showed an opening of the size of a florin, situated about half an inch from the os uteri. The edges were very unhealthy, having an ash-grey look, and evidently inclined to slough. The whole vagina was very sore and excoriated. She had a good deal of constitutional depression, with headache, with tenderness and swelling in the left inguinal region deep in the pelvic cavity, shivering, constipation, and much wasting. She was given decoction of cinchona with dilute nitric acid, generous diet, and opiates at night.

She gradually improved much in general tone, and the vagina became more healed. The edges of the fistula cleaned. The cicatrization of the vagina contracted; and several bands formed which dragged upon the opening. On January 3rd, 1859, she was put under chloroform, and I divided these bands, and plugged the vagina with oiled lint, which was changed every day. This gave much more room.

January 23rd. I performed Bozeman's operation, the patient being placed on her hands and knees, without chloroform. A leaden button and six sutures were used.

January 24th. Some urine had escaped.

January 26th. The pulse 140; the tongue dry. She was ordered to have some blue pill and extract of colocynth.

January 27th. The bowels were well opened, and she was much improved. There was an escape of urine.

From this time she improved in her general health, and on February 4th I removed the button. The fistula was found to be healed in the middle in such a way as to leave two openings, one the size of a fourpenny piece, and the other of a large bougie. As the vagina was rather irritable, and the general tone low, she was put upon tonics for a short time previous to another operation.

February 21st. She was placed under chloroform on her back, and I proceeded to operate. I intended to close each opening separately, but as I progressed with the operation, I found it would be much easier to close them under one button. I therefore did so with four sutures with a long straight needle carrying the silver wire itself, which I had used in some of my earlier operations, and which in certain cases is easier to use than the short needle in the *porte aiguille*.

She went on very well, and had no escape of urine or any untoward symptom, and on March 2nd I removed the button, and found the opening entirely closed.

March 7th. She could retain her urine at pleasure. In every respect she was perfectly well.

March 9th. She left the institution quite well.

Case XXII.—*Vesico vaginal fistula: Two operations: Cure.*—A. B., æt. 44, residing at Lewes, Sussex, was recommended by Dr. Henry Bennet. She was admitted into "The London Home" on the 10th of January, 1859; she has had five children, all of whom were still-born, except the fourth, who is now living; she was last confined on Oct. 3rd, 1857; she has also suffered from severe menorrhagia, followed by the removal of a polypus. (Statement of her medical attendant):—After her

last confinement, a piece of bladder sloughed away. Her general health improved gradually; and as hopes were held out of a cure taking place without operation, she postponed applying for further relief. She is enormously stout. The opening into the bladder can with difficulty be seen. When felt, it appears about two inches and a half across; the posterior edge being formed entirely by the lip of the os uteri, which is much enlarged, thickened, and patulous. The edges of the fistula were inverted.

Jan. 17th. She was cautiously put under the influence of chloroform; but the parts were unable to be brought into view from the rolls of fat about the labia. Nothing, therefore, was done. The difficulties of the case were so great, that I advised her to give up hopes of recovery; but she begged so hard to have another trial that I determined to try and bring down her fat, and consequently kept her on milk, fish, biscuit, and water. The result was so satisfactory that, on Feb. 14th, I operated, using Bozeman's button and seven sutures. No chloroform was given; and she was placed on her knees and chest, so that she might assist us in keeping open the vagina. Every suture was passed through the lip of the os uteri. There was profuse hæmorrhage, which continued some hours after the operation. Generous diet and wine were allowed.

Feb. 15th. She suffered great pain in her right side and leg, and was obliged to be put on her back. 17th. Slight escape. 26th. Button removed; the parts look sore and unhealthy, but apparently united. In two days it was found that the opening was but little, if any, smaller than before the operation.

March 19th. I intended to operate, but finding a band contracting the parts, I thought it better simply to divide it. The parts were then kept dilated with sponge tents.

April 8th. The parts not being sufficiently healed to allow another operation, she was sent into the country for a time.

May 3rd. She returned, much improved in general health. 7th. I operated again, using my bar clamps. I was assisted by Messrs. Nunn, Philip Harper, Wratislaw, and Spencer. The parts were brought into perfect apposition by six sutures with bar-clamps. Opium was given until sleep was induced. 15th. Catheter left out for half an hour; no escape. 16th. Bowels relieved freely after some aperient medicine; urine passed naturally. 20th. No escape; healthy and plentiful discharge of granulating pus. 23rd. The clamps were removed, and most perfect union found to have taken place; not the least appearance of escape.

She was discharged perfectly cured, and has since repeatedly reported that she is quite well.

Remarks.—This was the most unpromising case I had yet met with. The extreme fatness of the patient, especially around the thighs and labia, rendered it quite impossible, under chloroform, to get a view of the opening, large as it was; but when she had been reduced by diet, &c., then, without chloroform, being placed upon her elbows and knees, I was enabled to pare the edges, and bring them well together with Bozeman's button, passing every suture through the thick lip of the os uteri. When I first removed the button, I thought the union was complete, and she passed her urine comfortably. Directly she got about, all gave way again, showing that only the edges of the fistula were united. This I attributed to the character of the fistula, which was so much inverted that the button merely brought the edges into contact, and not the entire raw surface. I therefore determined to use my bar-clamps, so that each stitch might bring well together

the entire denuded surface, and fall in with the inverted edges; the result being a complete cure.

CASE XXIII.—*Vesico-vaginal fistula: Four operations: Cure.*—R. O., aged 32, admitted into the "London Surgical Home," being recommended to me by Dr. R. C. Roberts, of Ruabon, North Wales. The fistula appeared six months ago, after a labour of two days' duration. The opening was not large.

March 3rd, 1859. I operated, and for the first time used my bar clamp instead of Bozeman's button. Chloroform administered. 10th. The clamps were removed. All the fistula was healed, except a small point in one corner. 17th. I operated again, using Bozeman's button. 25th. Slight escape. 28th. Button removed; parts look unhealthy; general health not good.

On April 22nd I again operated.

May 10th. Part of fistula healed; an opening about the size of a goose-quill on the right side. The parts look healthy. 12th. The patient being put under chloroform, I proceeded to operate in the presence of Sir James Clark and others, using Bozeman's button and three sutures. 20th. No escape; healthy and plentiful discharge. 21st. Bowels opened. 23rd. Button removed; perfect union, and not the least appearance of escape.

Soon afterwards she was discharged, perfectly cured.

Remarks.—This was one of the cases where union at the first operation did not take place, owing to the unhealthy condition of the patient. It will be seen that I waited a month between the second and third operations. I returned to Bozeman's button, because the parts around the fistula required a good deal of support. I had not then acquired sufficient confidence in my bar clamps to persist in using them after failure. I have just received (Jan. 4th, 1861) a letter from Dr. Roberts to tell me that this patient was safely delivered at the close of December of a child, without any injury to the vagina, although labour was protracted and forceps used to deliver.

CASE XXIV.—*Vesico-vaginal fistula: Three operations: Cure.*—A. S., æt. 58, admitted into the "London Surgical Home." The accident occurred thirteen years ago, after a labour of forty-eight hours' duration, which was finally terminated by instruments. The opening is as large as a half-crown, and passes completely across the vagina at the juncture of the body with the neck of the bladder.

March 3rd. I operated, using Bozeman's button and six sutures. 7th. Slight escape; catheter discontinued. 10th. Button removed; all healed, except a small space. 17th. I operated again, and used bar clamps. 25th. Left off the catheter on account of the irritation it caused. Nearly all the urine passes by the urethra, but there appears to be a slight escape. 28th. Clamps removed; still a small opening.

April 7th. I operated a third time, using my bar-clamps. 10th. Catheter removed; no escape. 20th. Clamps removed; no escape; all perfectly healed. 23rd. Discharged, cured.

Remarks.—This was a case of great severity, and the patient was worn down by her long-continued suffering. Still it will be seen that in seven weeks she was completely cured, and has continued well to this time, having recovered her general health and spirits. This case also shows the intolerance of the catheter which some patients suffer from; and I consi-

dered it better to remove it, and have the urine drawn off frequently by the nurse.

CASE XXV.—*Vesico-vaginal fistula : Operation : Cure.*—H. H., æt. 24. Has had two children. The accident occurred during the first confinement, about three years ago, when instruments were used, after a long labour, and chloroform administered. Five days after the labour, she found that the urine escaped involuntarily.

Two years ago, an eminent surgeon at Reading performed an operation, which materially reduced the size of the fistula. Since then her general health has been good. She was admitted into the "London Surgical Home" on the 22nd of March, 1859.

March 24th. I operated, using Bozeman's button. The opening was very small, and only two sutures were required.

25th. Slight escape from urethra. 27th. Good purulent discharge. April 5th. Button removed. 11th. Discharged, quite cured.

Remarks.—The fistula here was one of the smallest kind we meet with, and situated at the side of the vagina, almost covered by puckered folds of mucous membrane. The first operation was successful. I here used Bozeman's button because of the puckered state of the vagina.

CASE XXVI.—*Vesico-vaginal fistula : Operation : Cure.*—Mrs. F., æt. 35. Six years' duration. Sent to me by Dr. Hingston, of Plymouth, whom she had consulted. Has been pregnant five times. Three of the labours were terminated by instruments, and the other two were miscarriages. The fifth labour took place six years since. She was in hard labour fifteen hours, and, becoming exhausted, craniotomy was resorted to. The urine escaped immediately after the termination of the labour, and has since always passed away without her control. When lying down, she can hold about half a teacupful. Menstruation irregular, and general health weak. Examination showed an opening in the bladder, admitting the forefinger, and extending through the os uteri up the neck of the uterus for an inch and a half. The os was also torn, and one portion of it formed a sort of valve, falling over and partially concealing the opening.

July 16th. I operated in the presence of Dr. H. Jones, Messrs. Nunn, Philip Harper, and Hemphill, under chloroform. I was obliged to insert the sutures longitudinally, instead of transversely, and through the cervix uteri itself. I managed thus to get the edges together. There were six sutures; the highest one I closed with a simple shot; the remaining ones with my bar-clamps. 20th. Complains of catheter hurting her, and is constantly withdrawing it. 22nd. There appears to be a slight escape. She is very restless and hysterical.

August 1st. The clamps removed. The opening appears entirely united.

4th. Very careful examination shows the opening to be entirely healed. She can hold her urine four hours.

In a letter I received from her husband a few days afterwards, he says, "I believe the operation has been entirely successful, and that after my wife gains strength she will be able to move about with perfect ease and comfort. She can hold her urine four hours at a time."

Remarks.—This case was one of great difficulty. At first I passed my sutures as usual transversely, and hoped to bring down the torn os and cervix on to the edge of the fistula, but I found that after so doing a vesico-uterine fistula would remain. I therefore removed them, and inserted them

longitudinally. Thus I brought the edges of the torn cervix well together, and afterwards the vaginal part of the fistula. I felt confident the operation would succeed; but the poor lady seemed to possess no power of keeping quiet, and the catheter irritated so much that she kept constantly removing it. Thus it appeared success could not follow; yet the clamps held on so well that the union was complete.

Case XXVII.—*Vesico-vaginal fistula: Operation: Death.*—Mrs. E., æt. 56, admitted into the "London Surgical Home" on April 19th, 1859. About twenty years ago she was delivered of her eighth child, after a labour lasting from Monday until Friday. It was terminated without instruments. Five days afterwards the urine trickled away involuntarily. It was at first attributed to weakness, and nothing was done. She cannot retain any urine in the bladder in any position whatever. Her general health has become much affected, and she has suffered much from bilious attacks.

Examination showed a large opening, the lips of which were bound to the walls of the vagina by strong bands of organized lymph.

April 21st. I divided the bands, and plugged the vagina with a sponge tent.

25th. A little hæmorrhage.

May 2nd. A smart attack of hæmorrhage. The vagina was injected with a solution of chloride of zinc, and then replugged with lint saturated with a strong solution of tannin.

5th. No hæmorrhage; vagina replugged. To take bark and nitric acid; to have the vagina injected daily with a weak solution of chloride of zinc.

9th. Suffers great pain after the injection.

11th. Progressing favourably; the wound dressed again.

15th. The wounds have healed; dressing discontinued.

26th. I proceeded to operate, using my bar-clamps and three sutures. There was violent hæmorrhage from a small artery. The patient was at first put on her hands and knees; but, owing to the hæmorrhage, was afterwards placed in the lithotomy position.

27th. Slept pretty well; slight escape.

28th. The purulent discharge is beginning to appear. The catheter to be taken out twice a day. Eight ounces of wine, with generous diet.

June 1st. Progressing favourably, but suffers from great weakness.

3rd. Feverish and uneasy; the bowels not acted since the operation. To have half an ounce of castor oil and an enema.

4th. Bowels acted freely; more comfortable.

6th. Clamps removed. The fistula appears healed, except a portion which could not be brought together, owing to the hæmorrhage during the operation. Bladder very irritable.

From this time she got rapidly weaker, and, although never complaining, she died on June 13th, apparently worn out. The system never rallied under any quantity of stimulants and generous diet.

Post-mortem examination.—The lungs and heart were found pretty healthy; the aorta slightly cartilaginous; the right kidney was about the size of a pigeon's egg, whilst the left was three times its normal bulk, and must for some time have been the only one secreting urine; the liver soft and friable. The whole body was very bloodless. The parts which had been operated upon were unhealthy, and inclined to slough.

A more minute examination made of the parts by Mr. Nunn, showed "the bladder to be atrophied, the walls not thicker than parchment. The vesico-vaginal orifice reached from within half an inch of the neck of

the bladder to the orifice of the ureters—that is, the whole of the base of the bladder was wanting. One kidney was converted into a cyst, no doubt from the obstruction of the ureter, which must have been of long standing, as such change could not have occurred except very slowly. The other kidney was hypertrophied. The upper part of the vagina was a good deal inflamed."

Case XXVIII.—*Vesico-vaginal fistula, three years' duration: Operation: Cure.*—S. B., from Hadlow, near Tunbridge, sent to me by Mr. Hooker, under whose care she subsequently came, admitted into the "London Surgical Home" on the 7th of November. She was twenty-nine years of age; mother of four children. The first three labours were very good. She was taken in labour with her fourth child at four A.M., and at half-past nine instruments were applied. They were persistently used until four P.M., when the child (a large male) was born. She had not passed her urine from the time her labour set in until its termination, neither had it been drawn off. The same evening she perceived it escaping involuntarily. It was imputed to weakness, and she was told that, as her strength returned, so also would the control over the bladder. This was three years ago; and since then she has not been able to retain her urine in any position. She has been operated upon in the country, and also frequently cauterized, but all without any benefit.

An examination showed a fistulous opening into the bladder, which would easily admit the forefinger, and was situated close to the os uteri. The edges were soft, and the mucous coat of the bladder was not much prolapsed.

Nov. 10th. She was placed under the influence of chloroform, and in the lithotomy position, and the new operation was performed. It required seven sutures, three of which were passed through the anterior lip of the os uteri. Each suture was closed down by the bar-clamp. The operation only lasted forty minutes, although each step was performed very slowly, in order that it might be explained to several gentlemen who were present. She went on very well with no escape of urine; and, on Nov. 20th, the clamps were removed, and the whole fistula was well and firmly healed.

24th. She has perfect control over her bladder, and can easily hold half a pint of urine for three or four hours.

Remarks.—The several gentlemen who were present at this operation expressed themselves highly pleased with the rapidity of its performance, and with the great advantages of the bar-clamp.

Case XXIX.—*Three fistulæ: Several operations: Cure.*—(This and the three following cases are abstracted from the reports of the "London Surgical Home," taken by the visiting surgeons.)—"S. P., æt. 45, married, has had eight children and three miscarriages. Her first five labours were pretty good. Her last labour began at half-past twelve A.M. on Thursday, and lasted till a quarter past three P.M. on Friday, April 9th, 1852. She was finally delivered by instruments. Her urine came away per vaginam, immediately after the labour. Six months afterwards she was admitted into St. Mary's Hospital, under Mr. Baker Brown. On examination, he found two openings, separated by about half an inch from each other, the upper one near the os uteri. He performed several operations upon her without much benefit. Subsequently she entered the Soho-square Hospital, where the actual cautery was frequently applied. On Nov. 1st, 1858, she was admitted into the 'London Surgical Home.' On examination, Mr. Brown found both the openings much smaller, but the

edges very hard, almost cartilaginous. The patient stated that the last doctor under whom she had been, asserted that there were three openings; but at the time, only the two before mentioned could be seen. Mr. Brown operated on these by Bozeman's plan, excepting that the buttons were placed horizontally instead of transversely, as recommended by him. On the tenth day the buttons were removed, and both openings found to be completely closed; but in a few days she complained that a very small quantity of urine occasionally escaped; therefore, on Dec. 1st, Mr. Brown injected the bladder with tepid water, and then found the water escape (guttatim) through another small opening, which was situated at the very apex of the vagina. Around this was a strong band of adhesion, cutting off, as it were, the opening from the rest of the vagina. This was freely divided, and afterwards dressed with oiled lint and sponge tents. On the 3rd of January, 1859, Mr. Brown endeavoured to close the opening, which had become much larger, using Bozeman's buttons. Four days afterwards she was taken with violent sickness and diarrhœa; nothing relieved her; and the result was, the sutures were entirely torn out. On the 27th, the patient having perfectly recovered and the parts looking healthy, Mr. Brown again operated upon her, and for several days with apparent success; but on removing the button there was still a very minute fistula, through which a small quantity of urine escaped, when standing, but not in the recumbent posture. Her health being very much shattered by long confinement, she left the institution for the purpose of going into the country."

After this, I lost sight of her till June, 1860, when, hearing that she was quite well, I called on her, and found that such was the case. She stated that she had been gradually getting better and losing less and less urine, and for the last three months had been perfectly well.

Remarks.—It is evident that the cause of the *last* opening not healing was the unhealthy condition of the vagina, the parts around the opening being almost cartilaginous, and therefore possessing but very slight powers of healing. It will be observed that this case, prior to admission into the "London Surgical Home," was one of those treated before the advantages of silver sutures had been proved.

Case XXX.—*Two fistulæ, the larger one cured by one operation, the second by two.*—N. K., æt. 30, married; resides at Winchester; admitted into the "London Surgical Home" on the 20th of December, 1859.

History.—Had a child ten months ago; says that she was some hours in labour, the child being very large, but no instruments were used. About nine days after her confinement, she found that she was unable to retain her urine. She then applied to the County Hospital; afterwards she was seen by Mr. Buckell, who recommended her to be removed to the Home.

On examination, two openings were found, one admitting the end of the finger, and the second the end of a No. 10 bougie, with an intervening space not much more than a quarter of an inch. These openings were situated midway between the os uteri and the neck of the bladder.

Dec. 22. The patient being placed on her back in the lithotomy position, under the influence of chloroform, both openings having been pared, were closed by bar-clamps, the larger one requiring three, and the smaller two, iron-wire sutures being used.

27th. An escape of urine. On examination, the clamps on the smaller opening had fallen off, because the wires had ulcerated through, but a part of the opening was found to be healed.

Jan. 1st. The bar-clamps on the larger opening were removed, and complete union found.

19th. The smaller opening was again operated upon.

29th. Bar-clamps removed; complete union found.

Feb. 17th. Discharged quite cured.

Remarks.—It is always difficult to cure two openings by one operation; but it is certain that in this instance the cause of failure was the cutting out of the iron wires; and if silver wires had been used, such would not have been the case. It will, however, be observed, that the cure was effected in five weeks.

CASE XXXI.—*One fistula: Two operations: Cure.*—L. R., æt. 40, married, three children, admitted into the "London Surgical Home" April 7th, 1860.

History.—Eleven years ago she was confined of her first child. The labour did not last very long; but as she had previously been suffering from dyspepsia and debility, she became exhausted. The medical attendant thought it necessary to apply forceps, and a fine boy was born, who however only lived a few minutes. After the confinement, she was very ill; and, about a week later, she found that her urine dribbled away through the vagina, excoriating the parts dreadfully. Since then she has had two good labours, but has always been in a most wretched condition on account of the constant escape of urine.

On examination there was found an opening large enough to admit the top of one's thumb midway between the urethra and os uteri, and on the left side of the vagina.

April 12th. Mr. Baker Brown performed his usual operation, bringing the parts together transversely with five of his bar-clamps.

21st. Clamps removed. On their removal there was found a *very* small opening, but the rest was healed. Mr. Brown was in hopes that this would heal of itself, as there was a healthy purulent discharge; but as it did not do so, on

May 17th, he again operated in his usual manner, the patient *not* being under the effects of chloroform.

28th. Bar-clamps removed; no escape of urine.

June 10th. She left perfectly cured.

Remarks.—When it is considered that this patient had been suffering for eleven years, and, consequently, the parts around were much indurated, and that she was perfectly cured in about six weeks, the result must be considered highly satisfactory.

CASE XXXII.—*Vesico-vaginal fistula: Operation: Death from pyæmia.*—Mrs. W., aged 34, admitted April 18th, 1860, into the "London Surgical Home;" mother of five children.

History.—About three months before her admission she was confined of her last child. The labour was a rather protracted one, and she was attended by a midwife. After the labour, she was unable to retain any urine, but gradually improved, and at the time of her admission there was a mere trickling. She was sent to be under the care of Mr. Baker Brown by Mr. Hemming, of Kimbolton.

On examination, there was found a very small fistula at the junction of the urethra with the neck of the bladder, which could hardly be discovered. The opening had originally been much larger, but was now filled up by very unhealthy loose granulations.

April 26th. The patient being under chloroform, and in the lithotomy position, Mr. Brown performed his usual operation, three bar-clamps being used, with iron-wire sutures. She recovered well from the chloroform; but towards the evening unusual sickness came on, which nothing seemed to allay. This continued till the 30th, when she became delirious, and on May 3rd she died, having been insensible for the last twenty-four hours, the cause of her death evidently being pyæmia.

Remarks.—As soon as she was dead, I began to inquire into the cause of so unlooked-for a sequence to the operation. I then ascertained that there was milk in the breasts. This greatly surprised me, as she had assured me that she had weaned her baby some weeks before admission, and she had also led my friend, Mr. Hemming, to the same belief before he sent her to me. Had there been the slightest doubt in my mind on this head, I should never have attempted the operation, because I had long been convinced by past experience, especially of one case of death from pyæmia, after an operation for ruptured perinæum, where milk was still in the breasts, that an operation about these parts should be delayed until every trace of milk has disappeared.

Case XXXIII.—*Vesico-vaginal fistula, two months' duration: Two operations: Cure.*—Mrs. B., a lady from Berkshire, æt. 37; three children.

History.—With her first child she was in labour for a week, and was ultimately delivered by instruments. Her second labour was not nearly so severe. Her third labour occurred in March last. The pains began on the 7th, and were regular, as well as severe, until the 9th, when the child's movements ceased. The pains continued very severe, and on the evening of the 11th instruments were applied. After some hours' exertions, she was delivered of a female child (still-born), which weighed over 12lbs. She was not conscious of passing her urine after the labour was over; and when a few days afterwards, she arose with the intention of doing so, she found that it all passed involuntarily. A slough came away about the tenth day. She has recovered her general health, but has no control over the bladder in any position.

May 15th, 1860. I examined her, and found an opening into the bladder about the size of a shilling. It was situated a little distance from the os uteri, and extended up into the lateral wall of the vagina. There was a constricted band extending across the vagina, and involving the anterior edge of the opening. I placed her on a preparatory course of tonics, and on the 29th of May proceeded to operate, in the presence of Messrs. Plumbe (of Maidenhead), G. Brown, Clark, and Philip Harper. She was placed on her hands and knees, and did not take chloroform. In order to obtain a more complete command of the opening, I first passed one of Startin's needles through the edges, and then pared them freely; five sutures with bar-clamps were applied. The usual after-treatment was adopted.

Everything went on well for the first five days, but on the sixth there was a slight escape of urine. I removed the bar-clamps on the tenth day, and found that the greatest portion of the opening had healed, but a small piece where the constricted vaginal band was attached had not done so. As she was extremely anxious to return home, I determined to make another attempt to close the remaining fistula, without previously dividing the band, as I generally do. A fortnight afterwards, I again operated in the same manner, and in the presence of the same gentlemen. The opening this time only required three of my bar-clamps. She went on very

well this time; and on the eleventh day I removed the clamps, and found the opening perfectly healed. A few days later she returned home.

Remarks.—This case would have healed by the first operation if I had previously divided the constricting band, which, by constantly dragging on the inner edge of the fistula at every movement of the patient, disturbed the co-adapted edges. Although two operations were performed, the patient was cured and returned home in five weeks.

Case XXXIV.—*Large fistula: Two operations: Cure.*—(From the reports of the "London Surgical Home.") H. S., æt. 21, admitted under the care of Mr. Baker Brown, May 26th, 1860.

History.—Three years ago she was delivered of her first and only child. She was three days and nights in labour, and was then delivered with instruments. She was very ill afterwards, and about a fortnight later found that her urine escaped *per vaginam;* this it has done ever since, and she has been in a miserable condition.

On examination, the vagina was found much cicatrized, and the os uteri protruded at the vulva. The fistula was of the size of a florin, involving half the urethra and a large portion of the bladder.

May 31st. Mr. Brown divided the constricted bands in the vagina, and plugged the parts with oiled lint. Sponge tents were afterwards applied till

June 28th. The parts being now perfectly healed, she was placed on her hands and knees without chloroform. Having passed two long needles through the edges of the opening so as to raise them into view, Mr. Brown thoroughly pared and brought them together by seven silver sutures, using no clamps, but simply twisting the wire.

July 5th. Sutures removed; all healed except a very small hole about the size of a small pea.

19th. Mr. Brown operated again, the patient not being under chloroform. He used two bar-clamps.

28th. Clamps removed; all quite healed. Loses a little urine from the natural passage, from want of power to retain it.

August 12th. Discharged, quite cured.

Remarks.—It will be observed that the simple twisted sutures in the first instance were here used; my reason for so doing was that, half the urethra having been lost, any button or bar-clamp would have pressed on the remaining half and interfered with the free passage of urine.

Case XXXV.—*Vesico-vaginal fistula, three months' duration: One operation: Cure.*—S. D., æt. 38, married, admitted into the "London Surgical Home" May 29th, 1860.

History.—Has had nine children, generally with long labours; but the last time she says that she was in labour a week. This took place in February, and the labour was terminated by instruments. Nine days after the operation she discovered that the urine dribbled away *per vaginam.*

On examination, there was found a fistula about the size of a sixpence, just at the junction of the urethra with the bladder.

May 31st. I operated, using three bar-clamps, and bringing the parts together horizontally instead of transversely.

June 9th. Bar-clamps removed, fistula perfectly healed.

Case XXXVI.—*One fistula: Two operations: Cure.*—M. B., æt. 32,

has had one child, still-born; admitted into the "London Surgical Home" on the 18th July, 1860.

History.—Has been married fifteen months; was confined of her first child April 6th. The labour lasted twenty-four hours; no instruments were used. She was very ill after the labour, and about a week later her urine came away *per vaginam;* since then she has passed none naturally *per urethram.*

On examination, there was found a fistula about an inch long, situated at the junction of the urethra with the bladder. There was also a tight circular mucous band, which constricted the vagina; just above this could be felt the os uteri, which was very low down.

July 19th. Mr. Brown divided the band, and plugged the vagina with oiled lint, the patient not being under chloroform. Sponge tents were afterwards used until August 2nd, when Mr. Brown operated, the patient not being under chloroform. He used three bar-clamps.

Aug. 11th. Clamps removed. The fistula seemed quite closed; but towards evening the nurse found that there was a slight escape, the united parts having separated.

16th. Mr. Brown operated again, the patient being under chloroform; Bozeman's button, with six shots, was used.

27th. The button was removed, and the whole wound was found to be quite united.

Sept. 8th. Up to this period she had been gaining strength, and had been out several times. On examination, Mr. Brown found that the fistula was quite healed. The patient therefore left the same day for her home.

Remarks.—This is another of those cases where there was a want of power in the parts around the fistula, and where I gave credit for some part of the opening being healed, because it was filled up with loose granulations. It is always, therefore, better to cut away all the parts apparently united by such granulations before operating; yet it will be seen that she was cured in the short space of five weeks.

Case XXXVII.—*Vesico-vaginal fistula, obliterated urethra of eight years' duration: One operation: Cure.*—Mrs. B., æt. 42. This lady was sent to me by Mr. Ludlow, of Hinckley, Leicestershire; but that gentleman did not attend her in her confinement.

History.—Eight years ago she was taken in labour with her first child, and after twenty-four hours of severe pains she became insensible. She believes that instruments were applied, but is unconscious of their nature; by their aid she was delivered of a still-born female child. She had fits for some time after the labour, and when she became conscious she found that her urine came away involuntarily, and it has continued to do so ever since. She has never menstruated since the accident.

Aug. 11th, 1860. On examination, I found a fistulous opening which would admit three fingers, situated about two inches up the vagina. The urethra was entirely occluded, There was a slight corrugation at the point where the meatus should have been. The vagina was large and roomy.

13th. Chloroform having been administered by Mr. Wratislaw, I proceeded to operate in the presence of Messrs. George Brown, Philip Harper, Spencer, and my son Mr. I. Boyer Brown. I first freely pared the edges of the fistula, which were very hard and cartilaginous, and passed through them five silver sutures. Having done this, I introduced a long sharp pointed knife into the centre of the corrugated part which pointed out the

situation of the meatus, and gently pushed it into the bladder, keeping as nearly as possible in the track of the urethra. Through the opening thus made, which was nearly two inches deep, a metallic catheter with bag attached was passed. The sutures were then closed, one was simply twisted, but the other four were secured by my bar-clamps. In the evening the catheter became closed up with coagula, and it was found necessary to withdraw and cleanse it.

From this time she went on very well, having no escape.

On the 20th the bar-clamps were removed, and the whole opening was found perfectly healed. The catheter was retained in the bladder for a few days, after which, as the new urethra was found covered with mucous lining, it was withdrawn, and she was ordered to have her urine drawn off every four hours. In a month from the operation she could pass a certain quantity of her urine herself; but as the bladder had not entirely recovered its powers of contractility, she could not quite empty it. She was, therefore, directed to pass the catheter about three times a day. None of the urine escaped involuntarily.

Remarks.—Nothing could be more satisfactory than the success which attended the treatment of this very unusual condition, considering the length of time which had elapsed since the accident, and the total occlusion of the urethra. I have since heard from her. She menstruates regularly, and never loses any urine. She is still obliged to pass the catheter occasionally; but I doubt not that when the bladder has recovered its contractile power she will gradually be able to empty it without the use of the instrument.

Case XXXVIII.—*Vesico-vaginal fistula, with complete ruptured perinæum: Three operations for the fistula: Cure.*—(This and the two following cases are taken from reports of the "London Surgical Home:")—E. B., æt. 41, married, living at Leicester; has had thirteen children; admitted July 20th, 1860.

History.—On the 1st of April, parturition commenced; was in labour fifty-two hours, when craniotomy was performed. She was very ill afterwards, losing the use of her limbs. The urine escaped per vaginam immediately after the labour, and she has never passed any since by the natural passage. Diarrhœa also came on after labour, and ever since then the motions have passed away entirely without control. Early in June she went to the Leicester Infirmary, under the care of Mr. Paget, who, in consultation with his colleagues—Messrs. Macaulay and Benfield—recommended her to place herself under the care of Mr. Baker Brown.

On examination, the posterior part of the vagina was found contracted by bands of cicatrization, immediately behind which could be seen a small portion of the os uteri. Directly anterior to these adhesions was a long fistulous opening, running up into the left side of the vagina and bladder, in extent altogether about two inches. The whole of the perinæum was gone, and the anterior half of the sphincter muscle also.

Aug. 2nd. Mr. Brown operated for the fistulous opening, the patient being under the influence of chloroform, and placed in the lithotomy position. Seven bar-clamps were used, and put horizontally along the wound There having been no escape of urine, on the 10th the clamps were removed, and the union seemed perfect; but, on the following day, Mr. Brown found that about half of the opening had again separated. She was, therefore, placed under tonic treatment, with a view of improving her general health.

16th. Mr. Brown operated a second time, the patient being placed on her hands and knees, and not under the effects of chloroform. He used a button and five shots, and brought the edges together transversely.

25th. The button was removed, and all was found healed, except a small portion where one wire had torn through.

Sept. 13th. Having regained her health, Mr. Brown operated again, the patient being on her hands and knees. Bozeman's button was used.

22nd. The button having been removed, it was found that the most perfect union had taken place.

Remarks.—The reason, in the first instance, of a partial failure in the union arose from two causes: first, from the cicatrized band, which pulled upon the edges; and, secondly, from the low condition of the general health of the patient. It would have been better to have divided those adhesions, and to have waited two or three weeks before operating. In a similar case, such would be my practice. I may just mention, that the usual operation for ruptured perinæum has since been performed with perfect success, and the patient is now entirely relieved from her miserable condition.

Case XXXIX.—*Vesico-vaginal fistula, very large size: Four operations: Cure.*—S. H., æt. 28, married, living at Chichester; admitted into the "London Surgical Home" April 5th, 1860.

History.—She has had one child, eight weeks ago; in labour thirty hours, when craniotomy was performed; suffered from retention of urine for the first four days, when the catheter was employed. From that time no urine could be retained. This history was obtained from Mr. Bucell, who was called to see her after this condition was ascertained.

On examination, Mr. Brown found strong bands of adhesion almost closing up the vagina, and with an opening about the size of a five-shilling piece, which not only embraced the whole floor of the bladder from the termination of the urethra to the os uteri, but extended also to the left side of the vagina, destroying much of the tissues thereof. Mr. Brown freely divided all the bands of cicatrization, and afterwards dressed them with oiled lint, and then for many days used the usual sponge tents.

March 22nd.—Mr. Brown did not consider it advisable to attempt to close the whole opening; he therefore operated on a portion of it with three bar-clamps.

29th.—Removed the clamps, and the part operated on was found quite healed.

April 5th.—Several strong bands of cicatrization, still dragging upon the edges of the fistula, especially on the left side, were again divided and dressed as before.

May 31st.—The fistula being now the size of half-a-crown, Mr. Brown brought the edges together with seven bar-clamps.

June 7th.—Bar clamps removed; only a small portion had soundly healed, evidently because the patient was weak and out of health. She was, therefore, put under tonics and recommended out-door exercise.

July 26th.—Mr. Brown operated, using six bar-clamps.

Aug. 4th.—Clamps were removed. A large portion was found healed: but in consequence of the very bad state of health of the patient, it seemed impossible to close the whole. She was therefore sent to Brighton for a month.

Sept. 13th.—She returned much better in health, but some strong bands still constricting the vagina on the left side, Mr. Brown freely divided them.

Oct. 18th.—Mr. Brown again operated, using Bozeman's button and seven shots.

27th.—Button removed. Complete union had taken place.

Remarks.—This was one of those cases offering great difficulties, not only on account of the very large fistulous opening, but also because of the general bad health of the patient from the time of her admission, materially aggravated by a great fretfulness of disposition. It was one of those cases which no young surgeon, however clever, could have succeeded in curing by one operation.

CASE XL.—*Vesico-vaginal fistula, with a large recto-vaginal fistula: One operation: Cure.*—J. M., æt. 21; first child; admitted into the "London Surgical Home" on the 30th of July, 1860.

History.—Was taken in labour on the 24th of April, and delivered on the 25th by craniotomy, having been in labour thirty-five hours. Ever since that time the urine has escaped per vaginam. Was sent up from the Leicester Infirmary by Mr. Paget.

On examination, a fistula was found situated immediately behind the symphysis pubis, transversely, destroying half the urethra; the whole so tightly bound down by cicatrized bands, that it was almost impossible to pass a catheter from the meatus into the bladder.

On further examination, it was found that all the recto-vaginal septum, extending two inches up and including the whole of the base of the perinæum, had sloughed away, only a very superficial perinæum, composed merely of skin, remaining. This, therefore, was cut through, and the parts dressed with oiled lint. From this time, the whole vagina put on a most unhealthy, sloughy appearance, and for many weeks seemed to baffle every treatment, until Oct. 18th, when she regained her health sufficiently to admit of the division of a band which constricted the vagina, which quickly healed; and on Oct. 25th, Mr. Brown operated, the patient being in the lithotomy position, under chloroform, Bozeman's button and six silver wires being used. At the same time, Mr. Brown closed the recto-vaginal fistula up to the anus, using a button and three wires.

Nov. 3rd. Buttons taken off. The vesico-vaginal fistula was found quite healed, but the rectum was not healed, the edges looking unhealthy.

Remarks.—This case is one of great practical interest, from the fact of the patient being in such a bad state of health as to delay the first operation for three months. The propriety of the delay is proved by the rapidity of the union at the first operation. The rectum and perinæum have been since cured, except a very small recto-vaginal fistula, which causes no annoyance.

CASE XLI.—*Vesico-vaginal fistula, two openings, four years' duration: One operation: Cure of both fistulæ.*—J. E., æt. 37, admitted into the "London Surgical Home" Dec. 6th, 1860; married, two children. Four years ago was delivered of her first child, still-born; the labour lasted two days, and was terminated by instruments. About three days afterwards, she discovered that her urine came away entirely per vaginam; but as she got stronger she could retain some. Since then the urine has constantly dribbled away, but when sitting or lying, some is retained. Seven months ago was delivered of a girl alive, the labour being easy, and terminating naturally. Has been operated on in a London hospital, in which she was ten weeks, silk sutures being used and cauterization, but without any

benefit. On examination, I found a triangular fistula large enough to admit the end of a thumb just behind the urethra, the apex of the triangle being directed forwards, and about half an inch behind this was another and much smaller one.

Dec. 13th. I operated, closing the small fistula first by means of two silver-wire sutures simply twisted; and then the larger one by five sutures in the same way.

23rd. Sutures removed; both fistulæ healed.

Remarks.—This case was one of some interest from the fact of two fistulæ being closed by one operation. I hear from this patient that she has not perfect control over the urethra *when walking about.* Time, however, will doubtless restore this want of power.

Case XLII.—*Vesico-vaginal fistula, fourteen months' duration: One operation: Cure.*—M. D., æt. 41, admitted into the "London Surgical Home" January 16th, 1861, sent by Dr. Chambers Roberts, of Ruabon, North Wales, under whose notice she came subsequently to the accident.

History.—She is married, and has had six children; her first five labours were easy and short, but the last, which took place fourteen months ago, lasted two days, and was finally terminated by perforation of the head of the fœtus. Ever since, her urine has come away entirely *per vaginam.*

On examination, there was found a fistula two inches long, extending in a longitudinal direction from the anterior lip of the os uteri, which was torn, to within half an inch of the meatus urinarius. The fistula was very irregular in shape, and its edges were inverted into the bladder; in some parts there were masses of unhealthy, flabby granulations, while other parts of the edges were hard and indurated.

For three weeks after her admission the patient was very much out of health, and not in a fit state to be operated on; but she rapidly improved, and on February 7th, the patient being under chloroform, I operated, paring the edges very freely, and bringing them together by six silver-wire sutures simply twisted, the posterior suture being passed through the torn os uteri.

Feb. 20th. On examination the fistula was found perfectly healed, and the patient now passes her water entirely *per urethram.*

CHAPTER V.

RECTO-VAGINAL FISTULA.

By this term is understood an opening between the rectum and vagina, through which either the fæces or flatus may pass from the bowel into the vagina. Although this condition is not of so distressing a nature as the foregoing, still it is one which is extremely annoying to the patient, and moreover, often produces so much irritation to the vagina as to induce inflammation and excoriation of that organ. Of course the amount of inconvenience will depend upon the size of the opening.

Causes.—It may be produced (1), by recto-vaginal abscess; (2), by stricture of the rectum; (3), by laceration during delivery, with or without the use of instruments; (4), by sloughing after long impaction of the head; or (5), by corroding cancer, either of the rectum or of the vagina: or (6), it may remain as the consequence of imperfect closure of a complete rupture of the perinæum.

Treatment.—This will depend upon the nature of the cause.

1. If it arise from recto-vaginal abscess, it will very often yield to the application of caustics; or it may be cured by laying open the rectum from the fistula to the anus, as in the operation for fistula *in ano,* and by subsequent dressings, so as to insure healing by granulation.

2. If it be produced by stricture of the rectum and consequent ulceration of the recto-vaginal septum, division of the stricture simply will frequently be sufficient for the healing of the aperture: if it fail, caustics, or even laying open the bowel, as just described, may be requisite.

3. If it arise from laceration during delivery, whether by the use of instruments or by the force of the labour pains, and the rectum be torn without involving rupture of the perinæum, then,

putting the patient immediately in a quiescent state with the knees flexed, confining the bowels by opium, and applying a well-adapted perinæal bandage, will generally suffice for the healing of the laceration.

4. If it arise from sloughing after long impaction of the head, then, as soon as all sloughing has disappeared, the edges may be pared and then brought together by metallic sutures, just as is done in cases of vesico-vaginal fistula to bring them together by suture. If the opening be not larger than the head of a probe, the acetum lyttæ or actual cautery may be sufficient to effect contraction and closure, and these means I have found successful even when the opening has been larger. It will often be found more advisable to apply the cautery per vaginam than per rectum. Another plan which I have found successful is to pass three or four threads of twine through the opening, bringing one end out of the rectum, the other out of the vagina, and daily moving the threads for several days, so as to produce a healthy granulating surface, which heals on their removal.

5. In cases where the fistula is produced by corroding cancer of the rectum or vagina, nothing remains to be done by operative treatment, and our only resource is allaying the irritation by opium, and cleansing the parts by the frequent injections of warm water.

6. When the fistula is a sequel of imperfect closure of a lacerated perinæum, the introduction of a metallic suture, or the acetum lyttæ or actual cautery may be resorted to; the size of the fistula and other circumstances determining which is preferable.

After-treatment.—This consists in great attention to cleanliness, but more especially in constipation of the bowels by the frequent administration of opium. It is also necessary to confine the patient to one position on her side, and to keep her on generous and dry food. It will be observed that the success of the operation for this lesion is much greater than for vesico-vaginal fistula, on account of the great facilities offered by the use of opium in keeping the parts perfectly quiet after the operation, and also because of the more solid character of the contents of the perforated viscus.

I will now relate a few cases in illustration of the foregoing points.

CASE I.—*Recto-vaginal fistula from abscess in the rectum, of several years' standing: Cure.*—I was requested by Sir C. Locock, in the month of February, 1853, to visit a single lady, æt. 52, who had been suffering for four or five years from vaginitis, inflammation of the labia, &c., and had for some time past observed an occasional discharge of fæcal matter from the vagina. The most diligent examination had, however, failed to discover any recto-vaginal opening, although several eminent practitioners had examined her. As she had had a deep perinæal abscess, and also an abscess in the rectum some years before, it was the opinion of Sir C. Locock that there must exist some undiscovered communication between the two passages; and in this opinion I fully concurred. I examined the rectum carefully with the rectum speculum, but found nothing. I then examined the vagina most carefully with the uterine speculum, and after some difficulty discovered a small sore about two inches up the passage, in its posterior wall; this was evidently the seat of the opening, but the mucous membrane of the rectum seemed to close it, or to fall over it, as a valve, so that the finger introduced into the rectum could not be brought in contact with the end of the probe when pressed against the fistulous opening in the vagina, although it could be felt in the rectum by gently moving it.

Operation.—Feb. 16th. The patient being placed under chloroform, I first applied the actual cautery to the fistula per vaginam, and then divided the sphincter ani on both sides. Cold-water dressing was applied, and forty drops of laudanum administered.

Feb. 17th. Severe sickness from the chloroform, which was relieved by twenty drops of chloroform given on sugar. Bowels relieved with pain.

18th, 19th, 20th. Much the same.

23rd. An external pile, which created considerable inconvenience, was excised.

25th. Bowels acted without pain; no fæcal matter or flatus has escaped through the opening since the operation.

From this time the patient suffered no inconvenience from the fistula.

CASE II.—*Small recto-vaginal opening: Cure.*—Mrs. W., æt. 34, mother of one child, consulted me Nov. 30, 1853, and stated that since her confinement she had passed flatus per vaginam. On examination I found, about one inch within the rectum, a small fistulous opening through the septum, through which I could just pass the head of a probe. I then attached a piece of twine to the eye of the probe, and drew it through the opening. I twisted round this a piece of lint, which I drew into the fistulous opening, and then tied the two ends of the twine together over the perinæum. This produced, in twenty-four hours, inflammation, and subsequently the secretion of healthy pus, and in a week after the removal of the lint, the fistula was found closed. This patient has continued well to the present time, having been, in the interim, delivered of a second child.

CASE III.—*Large recto-vaginal fistula: Cure.*—Mrs. D., æt. 47, consulted me in 1852. Was confined of her last child seventeen years ago, by the aid of instruments, and has ever since suffered from the passage

of fæces per vaginam. On examination I found, about an inch above the anus, an opening sufficiently large to admit the point of the little finger. To close this fistula I applied the actual cautery freely and repeatedly, and succeeded in my object in the course of a few weeks. My first intention, indeed, was to reduce the size of the opening by the cautery, and then to pare and bring together the edges by suture; but this latter operation was rendered unnecessary by reason of the success of the cauterization.

Case IV.—*Recto-vaginal fistula: Operation: Cure.*—Mrs. S., æt. 25. June 2nd, 1854, I was requested by Mr. Gay to see this lady, who gave the following history of herself:—"Has been married six years. Her first child was born before she was twenty. The labour was very protracted; instruments were used, and the perinæum was completely lacerated. From that period until October last she had no control over her bowels. In the month of October last an operation was performed, but she still had no control over her motions, and the whole of the fæcal matter passed into the vagina; and she considered herself in a worse condition than before the operation. Two months subsequently to this, an operation was performed for the recto-vaginal opening, but the next day the sutures were torn out by violent sickness occurring. At the end of two months more another operation was performed, which partially succeeded, but gave her no essential benefit."

Upon examination, I found an opening large enough to admit my finger just within the anus. I gave it as my opinion that no operation for the fistula would be of any avail without dividing the partially restored perinæum, and commencing the operation *de novo*. The patient was, therefore, placed under the influence of chloroform; and I operated in my usual manner for ruptured perinæum, taking great care to dissect the mucous membrane freely off around the opening, and to bring the parts very closely into apposition. The sphincter was freely divided on either side. Metallic clamps were used instead of quill sutures, and answered very nicely.

The after-treatment was as usual; and on the fourth day the deep sutures were removed. During the subsequent two or three days she complained of a little wind passing through the vagina, but it gradually decreased in quantity; and on June 26th, I made a very careful examination, and found all parts perfectly sound. No fluid escapes through the vagina even when an enema is thrown up; and she has perfect control over the sphincter.

A fortnight after this she left town for Bristol, perfectly well in every way.

Case V.—*Recto-vaginal fistula and prolapsus uteri: Cured by one operation.*—This patient was sent to be under my care in St. Mary's Hospital, in March, 1857, by Mr. Symmonds, of Bures, Suffolk. She was thirty-eight years old, the mother of several children, the last being born a twelvemonth ago. The labour being long and tedious, the perinæum was ruptured up to the sphincter, which partially united, the cicatrix of which can be seen, leaving a recto-vaginal fistula the size of a fourpenny-piece, through which the motions were constantly passing, rendering the poor woman's life very miserable and wretched. When lying down, the os and cervix uteri prolapsed externally, and, in the erect posture, the whole of the uterus came down. There was thus a double affection to deal with, which I remedied by a plastic operation on the 25th of March,

making the horse-shoe denudation, and taking care that it extended beyond the fistulous opening, the edges of which were pared; and then dividing the remaining portion of the recto-vaginal septum through the sphincter, the parts being brought nicely into apposition by the quill suture, pieces of gutta-percha being used instead of the quills; and lastly, the interrupted sutures were applied.

March 27th. The deep sutures removed.

April 4th. Superficial sutures removed; parts quite healed. She soon after this left the hospital quite well; and I have since seen her with Mr. Symmonds, and examined her, and found her perfectly well.

This is a very interesting case, on account of the two affections being cured by one operation, a procedure which had never been attempted before, and which, it is self-evident, is the quickest and best mode of operating.

Case VI.—*Recto-vaginal fistula, thirty-five years' duration: Operation: Cure.*—T. M., æt. 65, married, two children; admitted into the "London Surgical Home" Dec. 28th, 1860, on the recommendation of Dr. Trouncer, of Mount-street; thirty-five years ago was delivered of her first child; was thirty-six hours in labour, which was terminated by forceps. On the third day, when her bowels were opened, she discovered that the motions came through the vagina, and they have done so ever since. In 1832, was delivered of her second child; the labour lasted twenty-six hours, but forceps were used, and the child born living. Her general health has been good, but she has suffered great inconvenience from passing her motions per vaginam. On examination, I found a recto-vaginal-fistula large enough to admit two fingers about two inches up the rectum.

Jan. 3rd, 1861. I pared the edges of the fistula, and brought them together by eight silver-wire sutures simply twisted.

Jan. 13th. Sutures removed, parts perfectly healed.

14th. Bowels opened without the slightest escape per vaginam.

This patient left the institution at the end of a month from the date of operation, the evacuations entirely passing per anum.

CHAPTER VI.

LACERATIONS AND CICATRICES OF THE VAGINA.

LACERATION of the vagina may result either from forcible expulsive efforts during labour, or from the application of instruments, or from violent attempts at coition in young females; and the consequences are often of so serious a nature as to demand the careful attention of the surgeon. Because, if the laceration be considerable, or especially if the vagina be lacerated in two or more places at the same time, with or without partial rupture of the perinæum, the great degree of contraction caused by the cicatrization of the lacerated surfaces when left to themselves sometimes produces such an amount of occlusion of the vagina as to prevent sexual intercourse. Hence it is of importance that immediately after the accident the wound should be plugged with lint smeared with ointment or oil, so as to prevent the puckering which might otherwise result. If this treatment is neglected in the first instance, and severe contractions by cicatrization ensue, then the contracted parts should be freely divided and dressed as just described. But my chief object in commenting upon this unfortunate accident is to insist on the importance of careful examination and proper treatment immediately after its occurrence.

Besides the cases appended, several of those of vesico-vaginal fistula, in which cicatrization of the vagina had taken place, illustrate the character of the surgical procedure necessary, so far as the removal of the contractions is concerned.

CASE I.—*Lacerated vagina.*—Mrs. E. Was called by Mr. Taylor, of Queen's Road, Bayswater, in consultation with him and Mr. Prescott Hewett, on account of a laceration of the vagina which had just occurred to this lady during delivery, although no instruments were used. The alarming symptom was the profuse hæmorrhage, which threatened the life of the patient. However, when we saw her together, a clot had formed in the vagina and acted as a plug, controlling and almost stopping the hæmorrhage. It was therefore judged expedient to leave this clot undis-

turbed until the bleeding from the torn surface had ceased, and then to remove it and to plug the vagina with pledgets of lint soaked in oil, in order to keep up constant dilatation, and secure granulation without contraction. This plan was carried out with success.

Case II.—*Contraction of the vagina after laceration, producing incontinence of urine: Cure.*—Mary M., æt. 27, married; admitted into St. Mary's Hospital, Dec. 23rd, 1853; was confined of her first child about nine weeks ago, after a labour extending from a Thursday evening to the following Sunday morning. The head of the child was very large, and was born, according to her statement, two hours before the body. No instruments were used. Soon afterwards she found the urine and fæces come away involuntarily, and apparently through the vagina; but after the lapse of a month the excretions passed naturally, and she regained control over the sphincter, except that when standing up, the urine escaped involuntarily. On examination the perinæum, which had been ruptured, was found tightly cicatrized; the vagina so puckered that it formed a *cul-de-sac* on one side, the size of a finger, and the cicatrix so dragged upon the bladder as to prevent its sphincter acting effectually when she stood up.

I divided the anterior margin of the cicatrized perinæum and the bands of the vagina, and then applied pledgets of lint dipped in oil, to keep the cut surfaces apart and on the stretch. She was then placed on a water-cushion and a catheter introduced into the bladder with a bag attached to its extremity.

Jan. 14th. Has gone on very well, but there is another band felt running across the left side of the vagina. This was divided and dressed in the same way as the previous incisions. 27th. Feels quite well. Has perfect control over her bladder when standing. Discharged cured.

CHAPTER VII.

TUMOURS OF THE UTERUS.

In this chapter I propose to treat of the several morbid growths from the uterus, including fibrous tumours, both intra-uterine or non-pedunculate, and pedunculate; glandular, cellular, and vesicular polypi; erectile tumours of the interior, and cauliflower excrescence of the os uteri; following the order in which they are here mentioned.

I. ON FIBROUS TUMOURS OF THE UTERUS.

The pathology of fibrous tumours of the womb has been so fully described in many well-known works on surgery and midwifery that it is unnecessary for me to give more than a brief *resumé* of the subject, particularly as my principal business is the elucidation of the surgical treatment of such morbid growths.

Three forms of fibrous tumours are distinguished according to the direction of their growth; the one imbedded in the walls of the uterus encroaching upon its cavity; a second projecting from its *external* surface; the third growing from some part of the *inner* surface of the uterus, or from its neck or mouth, usually considerably contracted at their point of attachment, and more or less filling up the uterine cavity, or protruded from it into the vagina. To the two first the term fibrous tumours of the uterus is more particularly applied, whilst the latter are best known as pendunculate fibrous tumours or polypi.

Now although these three varieties are alike in their histological characters, yet, in a practical point of view, and especially in respect to their relative amenability to treatment, the difference between them is sufficiently marked. Indeed, the removal

or destruction of the first-named variety has been regarded as generally impracticable, and is always difficult and dangerous; and the consequence is, that in most instances palliative measures alone have been tried. However, the advance of modern surgery has suggested modes of treatment from which permanently favourable results may be anticipated even in this more serious form of uterine tumours.

The tissue of the so-called fibrous tumours of the womb is not truly fibrous, but intrinsically the same as that of the muscular wall in which these growths originate, although denser and firmer. Their subsequent history is determined by the direction and by the original site of their development. Thus they may go on growing in the thickness of the uterine walls, causing them in course of time to bulge on both sides; or they may advance in size towards the external surface, or, again, towards the inner surface of the uterus. And, under either of the two latter conditions, they may become converted into polypi by what may be regarded as a sort of natural attempt at their expulsion from the uterine substance, made, we may presume, by the healthy muscular tissue contracting upon them as a species of foreign bodies. At times, in fact, this spontaneous effort at expulsion is successful, either by its progressive constriction and ultimate rupture of the pedicle, or by a process of extrusion accompanied by a breaking up of the substance.

When these polypoid tumours make their way towards the external surface of the uterus, they become sub-peritoneal, the peritoneum investing them externally; on the contrary, when they protrude from the internal surface they are invested by the mucous membrane of the uterus. The sub-peritoneal uterine tumours often attain a large size, and are frequently multiple, but except by pressure and consequent interference with the functions of neighbouring organs, they are seldom prejudicial to the patient, and their presence often remains entirely unknown until an examination after death reveals it. Not so, however, fibrous tumours in the walls, encroaching on the cavity of the uterus, or hanging from its interior by a more or less distinct peduncle. These varieties are almost invariably

the cause of much suffering, and of symptoms of serious moment to the patient, and to them our attention will be almost exclusively directed.

Further, the future history of fibrous tumours and polypi is, as we have said, partly determined by the original site of their development. When they originate close to the opening of the Fallopian tubes they are always small in size; when near the fundus, and, as it is more common, rather on the posterior wall of the uterus, they may continue to grow to a large size, increasing much the dimensions of the womb, now and then giving rise to the supposition of pregnancy. When, again, the tumour takes its rise about the cervix or os uteri, it commonly at once assumes the polypoid form, and projects into the vagina; yet instances now and then occur where the morbid growth even then takes an upward direction, and becomes hidden within the cavity of the womb. When the fibrous tumours arise low down, they produce less disturbance of the uterine functions than such as are situated internally, whilst those which bulge from the interior, or grow from its fundus, are not only attended by more aggravated symptoms, but cause also more considerable displacements of the womb. For instance, polypi of the fundus are not seldom the cause of inversion of the uterus. Lastly, the internal pedunculate variety, when it acquires the size of an orange, generally induces uterine contractions, which cause its extrusion into the vagina; and, as an ulterior consequence, the dragging down, and now and then the inversion of the uterus.

The pedicle or stalk of fibrous polypi has the same nature as that of their substance generally; but it is usually covered also by a layer of the ordinary muscular tissue of the uterus, pushed before the growing tumour at its emergence from within it. The extent of this covering will vary according to the site of the tumour at its origin within the substance of the uterus, to its size, and to the extensibility of the fibres. Hence we find this lamina of normal uterine tissue at times extending over the base, and in rare examples over the entire surface of the polypus, of which, consequently, it forms a partial or complete covering.

Fibrous polypi are ill supplied with blood, one or two small vessels only being discoverable entering their substance through

the pedicle; but so small, frequently, that their existence may readily be overlooked. Moreover, the small vascular supply is less distinct in older and larger tumours; indeed, in many such, it appears to be eventually entirely cut off. These facts have rendered it a puzzle to many pathologists to account for the excessive hæmorrhage which proceeds from fibrous tumours growing from within the uterus. But the difficulty vanishes when it is remembered that these tumours are covered by the mucous lining of the uterus with its submucous network of vessels, and that as extraneous bodies they exercise a reflex action upon the whole inner surface of the uterus, and thereby induce a determination of blood to it, which tends to relieve itself by hæmorrhage. The circumstance observed of actual bleeding from the surface of polypi themselves is also explicable from the presence of the mucous membrane over them, the extent of which is directly proportional to the tumour, and inversely to that of the uterus.

Another consequence of the mucous covering of polypi is that they are, as Dr. Charles Johnson has remarked, not altogether insensible. Moreover, it is in this envelope that œdema sometimes makes its appearance, and that ulceration is set up.

The development of fibrous tumours of the uterus is, speaking in general terms, restricted to the procreative epoch of female life. Until the uterine excitement of puberty accedes, and the menstrual flow is set up, we do not find fibrous tumours developed in the womb; and, on the other hand, it may be generally asserted that they do not originate after the cessation of the catamenia, or after the fiftieth year, although such tumours, arisen previously, may at a later period proceed with their growth. But usually, growth is feeble, or comes to a stand-still after the climacteric period. All causes which induce increased functional activity and determination of blood to the womb, favour the development and growth of fibrous tumours; hence they tend to more rapid growth at each menstrual period, by sexual excitement, and by pregnancy.

Another circumstance attaching to fibrous tumours is, that they may degenerate. The destruction of the enveloping

mucous membrane and the subsequent detachment of the tumour, occasionally in a broken state, have already been spoken of; but another termination may await the morbid growth, viz., a more or less complete degeneration and the deposition of calcareous matter. This transformation now and then happens to those tumours which grow from the outside of the uterus, but exceedingly seldom to those produced within it. Now and then a destructive inflammatory process originates within their substance, an event occurring especially during pregnancy, and that leads to serous and purulent extravasation in their substance and to final softening.

Cancerous degeneration may be affirmed to never occur; although the coincidence of cancer of the uterus and polypus uteri is a possible event, and stated to be on record.

Fibrous tumours of the uterus vary exceedingly in size, and also, but in a less degree, in density and firmness. Their effects on the health and well-being of patients are not, however, in direct relation with their dimensions; for at times a small tumour causes more suffering and more loss of blood than a larger one.

Again, they differ in consistence, as shown on section. Some are solid and very firm and elastic to the touch, and among pedunculate tumours some occasionally occur filled with a grumous or with a jelly-like matter, whilst others, as described by Boivin and Dugès, are completely hollow. But there are more of an intermediate character between the solid and the truly hollow polypi, known as fibro-cystic tumours, on account of their interior presenting numerous spaces or cysts, usually filled with serous effusion. These cystic tumours may, in many instances, owe their peculiarity to rapid development, but in others it is due, just like very many solid tumours, to the accretion of several similar morbid growths, originally separate and of independent development. This concrete form is mostly evidenced by the circular arrangement of the constituent fibres around several centres; and we may adduce this complex constitution of tumours to explain what Dr. Denman and others have noted as of occasional occurrence, the presence of two, and still more rarely of more pedicles. An instance of a remarkable uterine

tumour containing a gelatinous substance and hair, is recorded by Mr. Langstaff in the *Medico-Chirurgical Transactions*, vol. xvii. p. 63. Further, two, and less often more, separate tumours in different stages of growth are met with growing from the uterus, and the possibility of this occurrence renders an accurate examination the more necessary; for should a large polypus, for instance, be removed, we might confer little benefit upon the patient, if we overlooked and left behind a smaller similar growth to act as a source of sanguineous determination and discharge from the uterus. Dr. Barnes, in his Essay on Uterine Polypus (1854), calls attention to this practical point, and mentions a case in illustration, wherein after removing a large polypus he found a small one, about the size of a pea, growing from the os uteri, close to the point of attachment of the one excised.

On rare occasions a variety of fibrous tumour is met with in the uterus, possessing such inherent powers of growth that, after the mass has been detached from the stalk, the latter recommences the development of a new tumour, or, if a portion of the growth has been removed, the remainder proceeds to grow, and this too at a very rapid rate. One such case has occurred in my practice, and is hereafter recorded as Case XLI. Another example has been well described by my friend Dr. Elkington in the first part of the *Journal of the Obstetrical Society*.

With respect to pedunculated tumours, these differ extremely in size, varying from that of a pea to that of a child's head. One was excised in the Meath Hospital (Churchill, *Diseases of Women*, p. 201), some years ago, more than fourteen inches in length, and four or five in its extreme diameter; and many similar examples are mentioned by authors.

Their surface is generally smooth, and they feel firm and elastic. In colour they differ, both from their degree of vascularity and from contact with the air. Some look nearly white, or pale yellow; whilst others are dark red, reddish brown, and even purplish. Their appearance may be further modified by the occurrence of ulceration of their mucous envelope, and more rarely, by the throwing out of adhesive lymph over it.

Diagnosis of Fibrous Tumours of the Uterus.—This is often

attended with difficulty. In the case of tumours growing from the external aspect of the womb, symptoms may be so far wanting that no suspicion of them has ever arisen during life; and when symptoms are present we have a differential diagnosis between such extra-uterine growths and ovarian tumours—a matter hereafter treated of in the chapter on ovarian disease. On the other hand, when fibrous tumours grow from the internal surface of the uterus, we have certain general symptoms derived from disordered uterine function and displacement in position, and various signs arrived at by ocular inspection, by tactile examination, and by exploration through the abdominal walls. The general symptoms vary exceedingly in different patients, both in intensity and character. Often they very slowly progress for several years, and their cause is unsuspected. A mucous or leucorrhœal discharge is the first symptom; then come augmented catamenial discharge and increased frequency of this flux, and by-and-by floodings. Nevertheless hæmorrhage is not always an accompaniment of fibrous tumours; for it has been noted by several eminent physicians as having occasionally been absent even where such tumours have acquired a large size. Pain in the back, bearing down, fulness in the pelvis, frequent desire to pass water and occasional attacks of dysury, and general uneasiness and aching in the uterine region, accompany the frequent hæmorrhages, and increase the debility and sufferings of the patient. Dr. Barnes makes (*Op. cit.*, p. 32) the following just practical remark; that where there is a foreign body in the uterus, "even of small size, it rarely happens that contractions are not excited—that efforts are not made to expel it. The occurrence, then, of spasmodic intermitting pains, resembling those attendant upon abortion or labour, together with globular enlargement of the womb and hæmorrhage, point . . . . with a high degree of probability to the presence of polypus." Sometimes large clots of blood are passed, and occasionally the blood and discharge from the uterus and vagina accumulate and become offensive, and then excite a suspicion of malignant uterine disease. Besides the sympathetic irritation of the bladder and strangury, the actual pressure of a large polypus low down may interfere with the escape of the urine,

and also with the evacuation of the bowels. Lastly, severe constitutional symptoms are often produced, particularly when the sanguineous and leucorrhœal discharge is copious, and we have irritability of the stomach, nausea, dyspepsia, and palpitation, and if the debility be great, anæmia, and œdema of the extremities.

If the general symptoms point to the existence of a fibrous tumour, it is necessary to examine locally, and for this purpose we may employ the speculum, the uterine sound, dilatation of the os uteri by sponge-tents, and digital examination. And in the instance of tumours in an early stage within the uterine cavity, we may have need to adopt each and all these means of diagnosis.

When the fibrous tumour is intra-uterine, growing from the walls without a pedicle, the first sign noticeable is, that the womb is increased in volume and unusually heavy, and that in consequence of this it is more or less displaced, usually by reason of the more frequent development of tumours upon the posterior wall, with its fundus depressed backwards and its mouth consequently tilted upwards and forwards towards the symphysis pubis, in a word—retroverted. When the tumour is placed near the fundus, and does not greatly distend the womb, the os and cervix uteri may be found in their normal state, or the lips merely turgid and enlarged; but when the tumour is low down, it expands the cervix, and, according to its size, causes the greater or less disappearance of the neck, and the enlargement of the mouth of the womb, just as happens in pregnancy.

It is in cases of deeply placed tumours in the uterus that the uterine sound and dilatation of the os uteri by sponge tents are admissible as means of diagnosis. The former indicates any obstructing tumour within the cavity of the uterus, and measures the length of that cavity; whilst by the use of the latter the cervix uteri may be so dilated that the finger can be introduced within it, and observation by the speculum more completely made. These means should, however, be employed with much caution; and for further information respecting them I would refer to Dr. Simpson's works, and to a valuable paper by the

late Dr. Montgomery in the *Dublin Journal of Medicine*, August, 1846.

Sometimes the tumour can be felt in the uterus by the finger introduced just within the cervix, or the uterine sound may be passed around it, when we may conclude that it grows from the fundus of the uterus, because if it sprang from the cervix or its vicinity, this passage of the finger or sound round it would be interrupted by its pedicle.

The time for searching after a polypus is, as Sir Charles Locock has shown, whilst hæmorrhage is going on. He says, "I never discovered the polypus when I examined the uterus in the intervals between the attacks of hæmorrhage, either by the finger or speculum. The os uteri closes in the intervals of the attacks. The tumour comes down during hæmorrhage."

To bring a tumour into view when it is pretty clearly made out to be pedunculate, it is the practice to give ergot of rye, or to apply galvanism to the uterus, in order to induce expulsive action; indeed, Dr. Copland has employed both biborate of soda and ergot of rye with the view of entirely expelling and removing polypi without the aid of other treatment. Dugès advised the free application of belladonna to the os uteri; and Dupuytren proposed incisions to be made into it, in order to expand it; but neither of these methods has found favour in this country. It is sometimes practicable to seize the tumour with a tenaculum, or a pair of "bull-dog" forceps; and where it is desirable to maintain traction on the tumour, in order to bring it out of the uterine cavity, this may be done by allowing the forceps or the tenaculum to retain its hold, and to attach a weight at the end of the instrument, hanging from it over the side of the bed by a piece of string.

There are certain pathological conditions with which fibrous tumours, and particularly those of the stalked variety, may be confounded, and concerning which a few observations are required. In the case of the internal tumours, many of the symptoms are like those of pregnancy; and it is chiefly to the physical means of diagnosis above indicated, in company with those many other signs of pregnancy so well known, that we must resort, to give precision to our judgment.

To the distinction of polypus uteri from pregnancy the same methods of diagnosis are applicable; the same negative signs, the absence of the auscultatory sounds, the slower progress of tumours, and the frequent attacks of hæmorrhage, are especially important.

Some years since I saw a case, with Mr. Musgrave, of a lady who had engaged him to attend her in her anticipated approaching confinement. He had never examined her, and had no cause to suppose her not to be pregnant: the only possible proof to the contrary being a slight monthly sanguineous discharge. At length he was suddenly summoned to her, as she experienced expulsive pains, and felt something pass into the vagina as she sat on the night-stool. This Mr. Musgrave at once found not to be a child, but a large polypus, which had been thus suddenly propelled from the uterine cavity into the vagina, and grew by a stalk from the cervix uteri. On my seeing her, I immediately excised it through its pedicle, not waiting to apply a ligature. No hæmorrhage of any account followed, and she subsequently soon recovered completely.

A polypus in the vagina is readily distinguishable, as Dr. D. Davis says (*Obstetric Medicine*, vol. ii. p. 622), by its feel from a vaginal hernia; for the latter is elastic and compressible in a much higher degree, is perfectly sensible to the touch, and "covered by a production of the mucous membrane of the vagina itself."

From *vaginal cystocele* (or protrusion of part of the bladder into the vagina) polypus may be thus distinguished:—In the former condition, the tumour is covered by the mucous membrane of the vagina, and if a catheter be introduced into the bladder, the end of it may be felt in the tumour. The tumour may also be pressed up above the arch of the pubes, which cannot be done in polypus.

From *scirrhus uteri*, by the absence of the severe pain which precedes ulceration in this disease; and although hæmorrhages occur in both, in cancer it is after ulceration has commenced, whereas in fibrous tumours no ulceration can be detected. If it be a polypus within reach, of course the diagnosis is very easy.

From *cauliflower excrescence* polypus differs by its greater smoothness and density, and by its not bleeding when touched.

From *prolapsus uteri*, by the absence of the os uteri in the projecting part, and the normal length of the vagina, which is shortened or obliterated in prolapsus. The sensibility of the uterus and the insensibility of the polypus will also distinguish the one from the other.

From *inversio uteri*, by its gradual advance, not occurring suddenly after labour, or with symptoms of collapse; and by the vagina admitting the finger, whereas in inversio uteri there is no vaginal canal to be found. From retroversion of the uterus intra-uterine tumours are not readily distinguishable; indeed, the two conditions are frequently associated together. In such instances the uterine sound is available both for determining the displacement and the presence of the internal tumour.

Prognosis.—The prognosis must always be unfavourable so long as the tumour remains within, or is attached to the uterus, on account of the severe hæmorrhages to which the patient is exposed. If the polypus be not removed, it may then prove fatal by exhaustion, or may produce prolapsus or inversio uteri; it may prevent conception, or give rise to abortion; or, if the patient should go her full term of pregnancy, it may offer a serious obstacle to delivery, or may tend to promote after-flooding by preventing contraction of the uterus.

§ 1. *Treatment of Internal Fibrous Tumours.*

The treatment of fibrous tumours of the uterus will depend much on their character, whether pedunculated or not. The latter were formerly considered to be amenable only to palliative measures—to such, namely, as obviated determination of blood to the uterus, and relieved the hæmorrhage and leucorrhœa. Attempts, indeed, were made to induce their absorption by deobstruents, such as iodine and mercury, but no distinct success could be pointed out; and it was not until surgical measures were devised that these internal tumours could be considered curable.

M. Velpeau suggested the removal of such tumours by what is termed enucleation, or the dislodging of them from their muco-cellular envelope and the uterine wall; and to effect this proposed to make incisions through the os and cervix uteri.

M. Amussat carried out the plan in 1840, and subsequently many other surgeons have followed his example, but with very indifferent success. It is, moreover, an operation fraught with danger both at first, and afterwards from pyæmia.

In December, 1859, I read before the Obstetrical Society of London the "*Report of a case of fibrous tumour of the uterus, illustrating a surgical operation for the cure of this affection,*" the case referred to having been operated by me in the February preceding; and, as I stated in that essay, I had put the operation in practice before I knew that Dr. Atlee, of Philadelphia, and M. Recamier, of Paris, had suggested and carried out a principle of treatment similar in its general features.

The reflection that polypi and these fibrous tumours of the uterus are identical in pathological nature, that the former may be readily destroyed by cutting off by a ligature their source of nutrition through the pedicle, and that the portion posterior to the ligature perishes as well as the anterior or distal mass, gave rise in my mind to the idea that, if we could destroy the integrity of a fibrous tumour, and produce a gradual death of its tissue, we might hope for its complete disintegration and removal.

This opinion was further strengthened by an observation made by me some years since in the case of a lady at Shaftesbury, in whom such a tumour gradually broke up, and was thrown off as a purulent vaginal discharge. The process went on for a long time—some two or more years—but was eventually completed, and left the patient in the enjoyment of good health, in which she has ever since continued.

Case I.—A case occurred to me at the "London Surgical Home" in February, 1859, in which I resolved to carry out the mode of treatment I had for some time previously conceived. The patient's age was 49, face sallow, skin wrinkled, and flesh wasted; and her whole appearance indicated great and protracted suffering.

She had been ill for six years, the first symptoms being pain and swelling in the lower parts of the abdomen, and a profuse menstrual discharge. The swelling gradually increased, accompanied by augmented pain in the pelvis, a frequent desire to pass water, and a great difficulty in defæcation. The obstruction to the relief of the bowels at length became so great, that she was obliged to resort, as a rule, to purgatives. She was almost always in pain from the pressure of the tumour on the neighbouring viscera.

She had been under medical treatment a long time, and latterly under the able care of Mr. Teale, of Leeds, who candidly told her that he had no hopes of her being cured.

Examination.—By external pressure on the abdomen, I discovered a tumour extending from the pubes half way up towards the umbilicus, and of the size of a five months' pregnant uterus.

On a vaginal examination, I found I could only pass the finger about an inch up, as it came into contact with the os uteri, which was slightly patulous and very rigid. The cervix had been entirely obliterated by having been taken up in the enlargement of the body of the uterus. The whole cavity of the pelvis was felt to be occupied by the uterus, which was pressed back into the hollow of the sacrum, and on the other side squeezed the bladder under the arch of the pubes.

She was suffering much from dyspepsia and palpitation of the heart, and was altogether so much out of health that I at first hesitated to try any operative procedure. However, by careful attention to her diet, and the administration of appropriate medicine, she improved much in health, and earnestly desired to have the operation performed, the general character of which I explained to her. On the 21st of February I accordingly operated in the presence of several surgeons, and with the assistance of my colleagues, in the following manner:—

I placed her in the lithotomy position, and after gradually dilating the vagina, I introduced Bozeman's speculum, and brought into view, by means of two vulsellum forceps, the os uteri, which I then divided in three places by a straight-pointed bistoury, and thus brought well into sight the fibrous tumour, which I pierced in the centre, and then cut out from it a portion, much in the manner of coring an apple. Through the cavity thus formed, I broke down as much as possible the surrounding tissue of the tumour, and then concluded the operation by placing oiled lint in the incisions in the neck of the uterus, and by plugging the vagina with the same material.

So soon as the patient (after having been put to bed) had recovered from the effects of chloroform, I gave her two grains of opium, and subsequently, for the next three or four days, kept her slightly under its influence. On the third day the oiled lint was removed, and the vagina afterwards syringed night and morning with water containing a small quantity of chloride of lime. For the first few days there was considerable uneasiness and pain on pressure over the whole uterus, but these symptoms steadily subsided under the influence of opium, and by maintaining perfect quiet.

After fourteen days the nurse reported that she could pass the injection-tube two inches into the vagina instead of one inch only, as at first, and that the discharge was free and not offensive.

In another fourteen days the tube could be introduced still further, and a small quantity of water could be retained in the bowel when injected, whereas, before the operation, not an ounce could be kept up. An examination of the abdomen at the same time rendered it evident that there was a considerable decrease in the size of the tumour.

At the end of four months, during which a progressive improvement was manifest, nothing more than a slightly enlarged uterus could be discovered on the most careful examination. The bowels acted freely, the urine passed without difficulty, and the general health was so much improved that the patient could take daily drives in a carriage, and at the end of July was able to leave London for her home in the country.

In the course of the November following she wrote to me to say she was quite well, and could walk four or five miles without undue fatigue.

Remarks.—In all probability the tumour was, in the instance just recorded, gradually disintegrated and mostly carried off in the vaginal discharge, but the opinion may be hazarded whether the decrease was not also due in some measure to the operation of absorption carried on by the uterine veins, and first thrown into action by the serious interference with the processes of nutrition and growth belonging to it.

I have thus introduced the above case, as I first published it, in illustration of my views and procedure at that time, though subsequent experience has suggested to me the desirability of certain modifications, which may be traced in the history of the several other cases in which I have operated. However, there are two or three general rules I desire here to point out. In unmarried females where the hymen is entire, and in others where the vagina is much contracted, preliminary treatment is requisite to dilate the canal, as well indeed for the purposes of diagnosis as for those of the operation for removal of the tumour, and equally, also, whether the case be one of internal fibrous tumour or of polypus. The dilatation may be effected by the use of bougies, or of teats made of sponge put into oiled silk bags, like those I employ in vesico-vaginal fistula.

The external passages being in a fit state, the operation may be proceeded with; but now, instead of completing this at one time, as I at first did, I mostly make two stages, between which two weeks or upwards are allowed to elapse. The first stage consists in making the incisions into the os and cervix uteri, and when the wounds thus made are healed, then the second stage may be undertaken—viz., the cutting out, or the gouging out of a piece of the tumour, a procedure which often calls for repetition. This division of the operation into two parts is intended to furnish security against the production of pyæmia; for if the incisions about the os uteri are recent and unhealed, they present an absorbing surface for the purulent discharge proceeding from the tumour above. To the omission of this point in practice I attribute one of the deaths that occurred after I had operated, and completed the whole proceeding at the same time.

The *rationale* of the operative proceeding is, as Dr. Atlee

expressed it, that "these tumours are very imperfectly organized; consequently their vitality may be very easily destroyed. A section made through their thin investing membrane will sometimes be followed by the death of the whole mass. This may be owing to the admission of atmospheric air causing it to degenerate. Indeed, it would appear that the action of the air, like a portion of yeast in a fermentable mass, may originate in any part of a fibrous tumour an action of eremacausis, which may extend throughout the whole." (*Medico-Chirurgical Review*, vol. xiv., 1854, p. 263.)

To Dr. Atlee's first statement I must express my assent, viz., that from the low vitality of fibrous tumours they may be destroyed by a partial destruction of their tissue, but to the hypothesis that this event is the consequence of eremacausis or decomposition by contact with the air I am not prepared to accede.

But there is another practical fact referred to by Dr. Atlee in the following passage (*Op. cit.* p. 263):—"The excessive hæmorrhages which sometimes occur, arise not from the uterus itself, but from the vessels of the membrane which covers the tumours. These floodings, I think, occur in this way: the veins of the investing membrane become at times greatly engorged, in consequence of their circulation being impeded by the muscular action of the uterus, while the arteries, by reason of their more resisting coats, continue to supply them with blood. The point of least resistance must consequently be at the os uteri, as all the other parts are compressed by the contracting uterus. The veins on the surface are thus distended. The mucous membrane is delicate, and offers but little resistance to the rupture of these vessels. Now, the practice which I wish to inculcate, as based upon the above fact, and which has invariably arrested hæmorrhage instantaneously, is, during hæmorrhage, to pass the bistoury along the vagina into the cavity of the uterus, and make a very free incision into the most exposed portion of the tumour."

This practical recommendation coincides very nearly with one I am prepared to make—arrived at quite independently, in the course of my own experience, and which I may put in the

form of a proposition; viz., That the hæmorrhage attending fibrous tumours within the uterus is almost always arrested by a free incision into the os and cervix uteri, even without any operation on the tumour itself.

I first recognised this fact about four years ago, during the treatment of a case of fibrous tumour of the womb, admitted into St. Mary's Hospital. At this time I was testing the value of the operation by enucleation, and had, in the patient referred to, freely divided the os and cervix uteri with a view to future enucleation, when I was struck by the circumstance that the flooding which had previously proceeded so copiously was arrested. Seeing this, I desisted from the further operation, and watched the case, and having ever since kept it under observation, am enabled to state that the hæmorrhage has never since recurred, and that the tumour has ceased to grow. This relief to the patient was followed by great improvement of the health and strength; and although she has frequently expressed a wish to have the tumour entirely removed, I have refused my consent, since it causes her no suffering, the only evidence of its existence being afforded by its slightly pressing on the bladder.

On mentioning this case, as illustrative of a new fact in medical knowledge, to several gentlemen present at my clinical instruction in June, 1860, at the "London Surgical Home," among whom were Dr. Olier, of Lyons, and Dr. Echeveiria, of New York, but at that time house-physician of the new hospital for paralysis in London, I learnt from these two physicians that they had been made acquainted with it during their attendance on M. Nelaton's lectures in Paris, and that it had also been noticed by others.

Though thus forestalled in the possession of this practical fact, it is satisfactory to find it confirmed by the experience of such distinguished men as Nelaton and Atlee; for the latter had evidently seized on the essential circumstances of the matter, though he speaks of incision of the tumour itself as the prime object, and advances a hypothetical explanation of the result which seems to my mind unsatisfactory. In lieu of this explanation I would offer the suggestion that the division of the os and cervix uteri permits the fibres of the body of the uterus to

contract upon the contained tumour, and thereby to compress the vessels and prevent hæmorrhage; that is, it puts the uterus in the same condition as it was previously to and during labour, where the os and cervix are annihilated as sphincter-like muscles, by the taking up of their fibres into the body of the uterus, which then contracts upon the body of the child.

In Dr. Atlee's hypothesis it is a manifest error that the hæmorrhage proceeds only from the surface of the tumour; for as we have before remarked, the blood comes also, and except the tumour be very considerable, in larger proportion, from the surface of the whole uterine cavity. Whatever be the explanation of the fact, its value remains the same to the practitioner, who will be pleased to know that, if he cannot cure or remove the tumour, he can relieve its most important symptom or consequence—that is, the hæmorrhage from it.

Another general rule of practice is not to postpone operation until the poor patient is broken down in health and strength, and positively unfit to undergo it, by reason of the exhaustive drain on her system by the mucous and sanguineous discharges and by the sympathetic disorders set up. If it is made out that there is a uterine tumour, and that it cannot be expelled from the interior of the womb in the form of a polypus, then it should be decided whether the removal of its chief symptom by incisions in the os and cervix shall suffice, or whether its destruction by inducing suppuration in the manner I propose be attempted. The powers of endurance of the patient materially affect the conclusion; for if she be very exhausted, it would be wiser to content ourselves with the preliminary incisions, even should we feel justified in subsequent interference with the tumour itself.

Where the operation is carried out completely, and the solution of the tumour set up, it is obviously necessary to support the patient's strength to withstand the drain, by generous diet and the exhibition of tonics. Further instructions on this point are not needed in these pages.

§ 2. *Treatment of Fibrous Polypi of the Uterus.*

The treatment almost invariably pursued for these tumours is surgical. Dr. Copland, as above said, has sometimes contented himself by attempting their separation by the administration of drugs calculated to induce such uterine contractions as may break them from their pedicles and set them loose in the vagina. However, I believe such medicinal means find little favour with most practitioners, especially as the operation for the removal of these fibrous polypi is very simple and not in any way necessarily or ordinarily dangerous. There are various modes of operating pursued:—1. Torsion, or twisting the polypus from its pedicle; 2. The application of ligature and allowing the polypus to slough off; 3. Excision; 4. The actual cautery.

1. *Torsion* has been practised by several surgeons, and especially by Mr. Toogood, late surgeon to the Bridgwater Infirmary. It is simply enough effected: the polypus is seized by the finger and thumb, or by a pair of forceps, and gently twisted until the stalk breaks. The only after-treatment then usually required is frequent syringing with tepid water to keep the parts clean. This method is applicable only in those cases where the pedicle is very slender.

2. *Ligature.*—Deligation to cut off the nutrition of the tumour through its stalk, and thus to cause its separation by the process of sloughing from it, has been more resorted to than any other plan, and to perform it various instruments have been from time to time invented, as noticed in every standard work on midwifery. For the ligature, various things have been employed, such as silk, wire, silk woven with wire, whipcord, and common twine or thread. The usual practice has been to tie the pedicle of the polypus tightly, day by day increasing the tightness, and thus to strangulate the tumour, until it perishes and becomes separated. It is evident that this plan must fail where the neck of the polypus is so thick that the pressure of a single ligature is not sufficient to strangulate the tumour. In this case a needle with a double ligature is passed through the neck of the tumour and tied on both sides. Dr. Robert Lee

tells me that he usually removes the ligature after a few days, without waiting for the entire separation of the polypus, with a view of relieving the patient of a source of irritation.

3. *Excision.*—Many eminent practitioners, impressed with the inconveniences and dangers of the ligature, have substituted for it excision by the scissors or bistoury. Amongst them we find Osiander, Siebold, Mayer, Dupuytren, Brodie, Arnott, Locock, &c. Dupuytren states, that he has removed by excision two hundred polypi in the course of his practice, and that hæmorrhage occurred in two cases only. Dr. Fleetwood Churchill has recommended that a polypus should be excised after a ligature has been tightly applied twenty-four hours.

4. *The Actual Cautery.*—This has been recommended by Siebold, who states that he has employed it with success. An ingenious mode of applying the actual cautery to detach a polypus has been suggested, consisting in surrounding the neck by the two wires of a galvanic battery, which, on the setting up of the voltaic current, become red hot, and so cut through it, and at the same time sear the bleeding surfaces.

In preference to any of these, I proposed some years since another plan, namely, the application of a ligature or ligatures (according to the size of the pedicle), and, instead of allowing the polypus to slough off in the ordinary way, or to remain twenty-four hours, as Dr. Churchill recommends, to excise that portion of the polypus external to the ligature *immediately after its application.* This mode of proceeding has since been adopted by several surgeons with success. My reasons for preferring it to the simple ligature are, that I have seen the most serious consequences ensue from allowing a putrid polypus to remain within the vagina; not only does it emit a most offensive smell, detrimental to the health and comfort of the patient, but it also produces excoriation and irritation of the vagina and labia. But further, a still more serious result is the absorption of some of the secretion from the putrid mass, which poisons the system, and produces sometimes uterine phlebitis, sometimes boils in different parts of the body, and sometimes abscesses in one or more organs, and the patient is frequently many months recovering from the effects of this

poison. Cases of uterine phlebitis succeeding the operation are recorded by Mr. Babington, late surgeon of St. George's Hospital, and also by M. Blandin. Dupuytren also relates that he met with eight or ten fatal cases which presented all the symptoms arising from the absorption of pus into the system.

I need not say that the plan above proposed is only applicable to those cases where the ordinary ligature would be applied by others, and is not at all intended to supersede the plan of excision where it can be safely adopted. My friend Sir C. Locock almost invariably prefers excision even in cases which would be thought by others unfit for that mode of treatment; and I have heard him state that he has never seen any ill results.

The following are the details of my mode of procedure.

The patient is placed in the position for lithotomy, under the influence of chloroform, and the vagina gently opened by retractors, when the polypus is seized by a pair of vulsellum forceps with long handles, and, if its pedicle be small, a ligature is passed round it by the fingers; if large, a long needle, carrying a double ligature, is passed through the centre of the pedicle and tied on both sides. The polypus is then removed either by a pair of curved scissors or a blunt-pointed bistoury, and a piece of lint soaked in a strong solution of alum applied to the cut surface, to prevent hæmorrhage. If hæmorrhage should occur, even after this application, the actual cautery should be applied through a speculum.

There are no special rules for after-treatment requiring detail. Rest and the recumbent posture need be insisted on for some days at least after the operation, and the vagina requires to be cleansed by frequent injections of tepid water, or, if the discharge be offensive, of chlorinated solutions. At the same time, the strength of the patient requires to be sustained by nutritious diet, and her anæmia and other constitutional derangements treated by appropriate medicines. But I must not dismiss the subject of treatment without observing that the mere removal of the tumour is not in all cases sufficient to re-establish the health of the patient, as Dr. Montgomery and Dr. Henry Bennet have shown; for where the tumour has acquired a large size, both its dimensions and long continuance often involve

local changes about the uterus, such as congestion, hypertrophy, enlargement, and sometimes ulceration or induration of its mouth and cervix, and then, as a consequence, leucorrhœa or hæmorrhage may persist, though the tumour itself is removed. It is, therefore, necessary to discover the condition of the uterus after the operation has been carried out, and to apply remedies to any such abnormal states as those indicated.

CASES OF INTRA-UTERINE FIBROUS TUMOURS.

CASE I.—(See p. 193.)

CASE II.—*Intra-uterine fibrous tumour: Ill seven years: Cure.*—A. M. E., æt. 35, unmarried, admitted into the "London Surgical Home" April 14th, 1859. Was in a state of great debility and anæmia; countenance haggard, and skin dusky and yellow; suffered a constant feeling of "sinking" and prostration, with occasional sickness and pain in the epigastrium; floodings at intervals of a fortnight or eighteen days, lasting for a week at a time. On examination, a fibrous tumour the size of a fist was discovered within the uterus. Her condition had been pronounced incurable, and the only remedies she had administered to her were of a palliative character. Having gained some improvement of her general state, I performed the preliminary operation of incising the os uteri on the 26th of May. After this the hæmorrhage ceased; menstruation, however, occurred every three weeks, and was slightly in excess of the normal amount. On July 21st, I sent her away into the country to recover strength, and it was not until the lapse of three months—viz. on Oct. 27th—that I proceeded to destroy the tumour according to my usual plan, by gouging a piece out of it. The breaking up of the tumour and its dissolution by a muco-purulent discharge followed, as in other cases; an accession of pain recurring about every three weeks, but diminishing in intensity at each recurrence until it at length ceased altogether. This recurrent pain preceded each catamenial period, and was doubtless due to the increased determination of blood at that time.

By February, 1860, the discharge had ceased, the uterus had regained its normal dimensions, and all the symptoms of the tumour disappeared. Her health had simultaneously greatly improved, and on the 21st of the month she was discharged cured.

I have since heard several times from her; she is in vigorous health, and capable of taking active bodily exercise without pain or bearing down. Menstruation also is now quite natural both in time and quantity.

CASE III.—*Intra-uterine fibrous tumour: Cure.*—C. W., æt. 30, admitted into the "London Surgical Home" May 19th, 1859.

History.—Is married, and the mother of three children. After her first confinement, observed an excessive uterine discharge, of a red colour and containing clots of blood. This continued for three months uninterruptedly. Her labour had been very severe, and was terminated by instruments. Her child had only reached the eighth month of fœtal life, and was supposed to have been dead four days before delivery. After the discharge ceased, she again became pregnant, and it did not reappear until

after her second confinement. She enjoyed good health until sixteen months after her confinement, when she weaned her child; the discharge then recommenced and lasted about four months. She again conceived, and about the fourth month, she suffered from severe loss, which lasted one day and night. She then continued well till her third confinement, since which she has suffered continuously from a severe discharge, rendering her quite anæmic, and so very weak as to be unable to walk. About two years after giving birth to her last child, she felt a tumour in the abdomen, which gradually increased. She has been under much medical treatment, and has been salivated, blistered, &c., without the slightest benefit.

On admission, I examined her and found her very weak and pale. There was a large quantity of white discharge from the uterus, which could be felt from above the pubis, enormously enlarged, sometimes rather harder than others, and rather tender on pressure. She was put on tonic treatment, and the uterus rubbed for ten minutes every morning, and the leucorrhœa soon disappeared. July 2nd. Had an attack of hæmorrhage for which gallic acid was given, and the vagina plugged with ice, but in spite of all it continued more or less for nine days, reducing her strength very much.

Oct. 1st. Left the Home, not having had any more hæmorrhage, and being much stronger and better. Menstruates regularly.

May 29th, 1860. Readmitted very weak and almost bloodless, and after her admission became insensible, and remained so four hours. She was brought to by liberal doses of port wine, &c. Her history of herself since she left the Homeis as follows. From October, when she left, till February, she was pretty well with the exception of a very bad cough. In February, after a menstrual period, she suffered much from hæmorrhage, losing at one time three pints of blood. The hæmorrhage recurred every eight or nine days, till the time of her readmission, when she was in the state mentioned above. Ordered steel and port wine freely.

June 24th. She has been rapidly improving till the last week, when severe hæmorrhage came on again. July 2nd. On examining the os uteri, I found that it was open and patulous, and the tumour could be felt just inside it. July 5th. I divided the lips of the os with guarded scissors, and plugged the vagina with oiled lint: there was very little bleeding. July 11th. Is going on very well, and seems relieved by the operation. 21st. There has been slight bleeding, but nothing like that on former occasions.

July 26th. I divided a little more the lips of the os uteri, and then introducing a pair of sharp-pointed scissors, broke down the tumour in several places. The patient was not under chloroform. 27th. Very comfortable, no pain, no sickness. Aug. 9th. Still very comfortable, but feels weak; ordered port wine, brandy, good soup, &c., and tonics. The abdomen is one and a half inch less in circumference than before the operation, the tumour is breaking up, and passed away in lumps, and as an offensive discharge from the vagina. Aug. 17th. Has lost much blood, which came away with muco-purulent and broken-up fibrous matter from the womb, rendering her very weak. Aug. 21st. Symptoms of pyæmia set in, but under the administration of chlorate of potash and bark, with good nourishing diet, they passed off in about a week's time, leaving her rather weak.

Aug. 28th. Tumour, as felt from without, much smaller, appetite and general health improving.

Sept. 27th. Lost a great deal of blood from the womb, the hæmorrhage

lasting twenty-four hours. Ordered bark and acid. She gradually got stronger, and lost no more blood; and on Nov. 27th, she menstruated, there being only a normal amount of discharge.

Dec. 10th. She left the Home, her general health is very good, and she can get about with comfort. The tumour can still be felt, but exceedingly diminished in size, and causes her no inconvenience.

Feb. 1861. This patient is now in good health, has a healthy complexion, and is increased in flesh. At the last menstrual period she only used three napkins.

Case IV.—*Fibrous tumour: Operation: Death.*—J. M., æt. 46, unmarried, admitted into the "London Surgical Home." Has suffered from a fibrous tumour of the uterus for twelve years, which has gradually increased, and is now the size of a six months' fœtal head: it causes great uneasiness and pain in her back, frequent desire to micturate, and an inability to sit up for a long time together. On examination, I found the hymen almost imperforate, and the os and cervix uteri not altered from their normal character.

Nov. 19th. I operated, in the presence of Dr. Hall Davis, Mr. Charles Mann, and Mr. Philip Harper, dividing the os and cervix uteri; and found a fibrous tumour embedded in the left side of the uterus down to the os internum. I then cut through the capsule of the tumour, and gouged out a piece from the centre of the tumour, and broke it down on each side of the opening thus made. I then plugged the vagina with oiled lint. There was very little bleeding. Nov. 20th. Has had some cold shivers and pain in the abdomen. Twelve leeches were applied to the abdomen, and a powder of hyd. c. cret. and pulv. Doveri given. 21st. At ten and four o'clock a shiver. At 2 P.M. gave three grains of quinine, which was repeated at night, and in the night. Pulse 120. 22nd. Passed a good night, without opiates; the pain of abdomen gone. Pulse 120, but soft. From this time symptoms of pyæmia progressed, purulent effusion occurred within the pleura, and she died on the tenth day after the operation. A post-mortem examination was made, and diffused purulent infiltration discovered.

Remarks.—The fatal termination of this case is attributable to the several stages of the operation having been performed together, and to the consequent absorption of pus by some of the recently cut surfaces.

Case V.—*Fibrous tumour: Operation: Cure.*—E. B., æt. 41, married, no children; admitted into the "London Surgical Home" February 18th, 1860.

History.—About four years ago she first began to suffer from debility produced by continual flooding, which has continued up to the present time. On examining the patient, I found her pale and weak, with a large fibrous tumour in the uterus. Feb. 27th. I slit up the lips of the os uteri, the patient being under chloroform, and plugged the vagina with oiled lint.

March 2nd. Has a regular attack of jaundice, which commenced two days after the operation. For this she was treated with three-grain doses of calomel, followed by a senna draught every other day for about a week, when she began to get better, her skin clearing, appetite improving, and strength increasing. Ordered tonics.

April 17th. Her menses appeared, and on the 18th, hæmorrhage came on, which continued for three days, but was kept quieter by ten-grain doses of gallic acid every four hours, and ice applied to the vagina.

May 7th. The patient having much improved in health and strength, I made an incision through the centre of the tumour, and plugged the vagina with oiled lint. May 12th. Catamenia appeared, followed by a good deal of hæmorrhage, which did not cease entirely for three days. For two or three weeks after the operation there was a bloody, offensive discharge from the uterus, and the tumour gradually lessened in size. June 26th. Catamenia appeared, not much more in quantity than normal. The patient has much improved in health and strength.

July 7th. She left the Home, the tumour being very much less in size, and the patient much better and stronger than on her admission. I have since heard from her that she is now in good health, can take exercise without pain or annoyance, and has had no return of the hæmorrhage.

CASES OF PEDUNCULATE FIBROUS TUMOUR OR POLYPI.

Case VI.—*Polypus: Removal: Cure.*—E. P., æt. 29, unmarried, consulted me December 2nd, 1852. She is anæmic in appearance, and has not menstruated for three months. She complains of headache at the vertex, and depression of spirits. On examination per vaginam, I found a small polypus growing from the superior lip of the os uteri, and extending up the cervix, making the os very patulous. I applied leeches to the os uteri every three or four days, and gave blue pill and ammoniated tincture of iron. After ten days the catamenia returned, and though rather scanty, they continued for some days.

On the 27th, the patient being placed under the influence of chloroform, and in the lithotomy position, I seized the os with a pair of vulsellum forceps, and the vagina being held open with retractors, I brought the polypus into view, and carefully dissected it away from the os and cervix uteri. It was irregular in shape, and about the size of a two-shilling piece. Lint soaked in a strong solution of alum was applied to the os, and the patient placed in bed. One grain of opium to be taken every four hours.

28th. No bleeding, little pain in the abdomen; the urine is drawn off by catheter. This case progressed favourably without any untoward symptom, and now, after the lapse of some considerable time, no recurrence of the polypus, nor, indeed, of any inconvenience about the uterus, has troubled the patient. This was a case where the base of the polypus was so broad, and the polypus itself so short, that it could not very easily be tied, although it might have been excised; still many surgeons would have thought the base too broad to recommend excision.

Case VII.—*Polypus, from the fundus uteri, adherent to os and cervix: Removal: Subsequent death from disease in the chest.*—E. S., æt. 45, married; has had five children. She enjoyed good health until two years ago, when she was admitted into the Middlesex Hospital for some affection of the uterus. Fourteen months ago she applied at St. Mary's for retention of urine, which she had frequently suffered from, and became an out-patient under my care. She had also chronic bronchitis, which added very much to her distress. On proceeding to make a vaginal examination, I found an enlarged uterus, with the os and cervix very patulous, through which the finger could be easily passed, and discovered a polypus occupying the whole cavity of the uterus, which appeared to be of the size of a small apple. It was, moreover, evident that the pressure of the enlarged uterus on the bladder had produced the suppression of urine. This poor

woman had suffered from repeated attacks of hæmorrhage, and her general health was much impaired. A few months after this examination, the polypus gradually protruded out of the uterus, tightly encircled by the os and cervix, giving great pain and suffering to the patient. A portion of the polypus, about an inch and a-half in length, was seen projecting from the vulva, of a yellowish colour, surrounded by a margin of fleshy substance, which on careful examination was found to be the os uteri extremely dilated, and inseparably adherent around the polypus: and when the patient was placed on her back for examination, it presented exactly the appearance of a distended glans penis projecting from the vagina, and completely filling up the orifice of that cavity. It could, however, be pushed back out of sight, but did not remain so. She was now admitted into Boynton ward December 12th, 1852, the chest was examined, and no disease found except chronic bronchitis.

December 29th. She was placed under chloroform, in the lithotomy position; the end of the polypus was seized by a pair of vulsellum forceps, and held by an assistant. I proceeded first to make a circular incision around the tumour at the point of juncture with the os uteri, dividing some of its fibres; then carefully dissected back the os and cervix, separating their very firm adhesions to the tumour, which extended upwards two inches. Above this the bands of the adhesion were fewer, and easily broken down by the finger. The polypus could now be distinctly felt growing from the fundus of the uterus. Having forcibly pulled out about three inches of the polypus, I passed a needle with a double ligature through its body as high up as possible, and tied a ligature on either side, so as completely to strangle it. I then cut off with a scalpel the portion anterior to the ligature. The operation occupied rather more than an hour. The patient was then removed to bed, had a rigor immediately afterwards, and vomited freely. Some brandy and water was given her, which having subdued the sickness, one grain of opium was taken, and ordered to be repeated every four hours. In the course of the evening she complained of slight shooting pains about the abdomen, with pain on pressure over the lower part. Her tongue being dry, she was allowed to suck ice freely. An injection of alum and water was ordered to be thrown up the vagina night and morning. A draught composed of one drachm of Hoffman's anodyne, half a drachm of the liquor opii sedativus, and camphor mixture, was given her at bed-time.

30th. Slept well during the night; complains of pain on pressing the abdomen; very troublesome cough; tongue dry, with some little sickness; pulse 130. That portion of the polypus behind the ligature appeared to be sloughing. Diet, milk and arrowroot. Towards the afternoon, the pain in the abdomen became more severe, and twelve leeches were ordered, and a linseed-meal poultice to be kept on constantly after their removal.

31st. Slept well; pain very much less; pulse 100. 6.30 P.M. Bowels have been twice relieved; no pain in the abdomen; states that she feels very comfortable.

Jan. 1st, 1853. The discharge from the vagina is fœtid. Ordered a lotion with chloride of soda. Bowels much relaxed; has been very sick; is depressed; extremities cold. Ordered an ounce of port wine every four hours, two pints of strong beef-tea during the day, and half a drachm of the compound chalk powder with opium. 2nd. The bowels were quiet some hours after the powder, but are again very much relaxed this morning. Powder to be repeated. 3rd. Bowels quiet; complains much of

thirst. Vaginal discharge free, and less offensive. 5th. Has slept well; bowels once relieved; the polypus is nearly separated. 11 P.M. All the polypus has sloughed away. She is very low: pulse 132. Ordered a sedative draught, and to have some brandy and arrow-root from time to time. 6th. Much better; enjoys her food. 7th. Bowels very much relaxed during the night. An opiate enema ordered. 8th. Pulse 116; mouth and throat very sore. Ordered the biborate of soda lotion. 10th. Did not sleep well; cough very troublesome; mouth still very sore; very slight discharge per vaginam. Ordered compound tincture of bark and dilute sulphuric acid, in addition to the four ounces of port wine daily. 12th. Mouth aphthous: complexion of a dark sallow colour; feeble quick pulse. From this time she gradually got worse, and died on the 3rd of February, five weeks after the operation.

Post-mortem.—Uterus well contracted, containing no remains of the polypus; no evidence of any disease of the pelvic viscera, but on examining the chest, both lungs were found studded with small tubercles in a state of suppuration, although no evidence of this condition was discovered before the operation. The lining membrane of the larynx, trachea, and bronchial tubes was found in a state of chronic inflammation, and the aphthous condition of the mouth extended through the œsophagus to the stomach.

Remarks.—This case I have related as being one of unusual interest from the various complications in connexion with it. The constitution of this patient was so shattered by her long suffering antecedent to the operation, that it is evident her death was not attributable to the latter, whilst the complete removal of the polypus, and the absence of disease in the pelvic viscera, clearly show the success of, and the justification for, the operative procedure.

CASE VIII.—*Polypus: Operation: Cure.*—Mary P., æt. 44, married, by occupation a laundress, was admitted, Sept. 2nd, 1853, into Boynton ward, St. Mary's Hospital.

She is a healthy woman, was married at seventeen, has had three children, and always enjoyed good health till two years since, when the catamenia stopped suddenly, which gave no inconvenience except occasionally, when she had headache. Three weeks afterwards, the catamenia returned violently, and continued for ten days; after which, she was unwell regularly every fifteen days, and continued so for a twelvemonth, since which time the hæmorrhagic discharge has never ceased for more than a day. The discharge consists of large clots of blood and a transparent fluid. On the 26th ult., she was obliged to go to bed and send for her medical attendant, who said it was a tumour, and advised her to go to the hospital.

Sept. 3rd. On examination, there was found a polypus of the uterus from three to four inches in circumference. On the 7th, the patient being placed under the influence of chloroform, I brought the polypus well down with a pair of vulsellum forceps, transfixed it with a needle with double sutures, and tied the tumour in two portions.

9th. A mixture with sulphuric acid, tincture of henbane, and decoction of bark was given.

In the evening of the 11th, she had a violent attack of peritonitis: five grains of Dover's powder were given, and twelve leeches and a linseed poultice applied to the abdomen.

12th. Repeated the Dover's powder, leeches, and poultice.

13th. She is much better; ligatures have come away, pulse 80, bowels

opened, tongue not very clean; a mixture of sulphuric acid, syrup of white poppies, and tincture of orange-peel was given three times a day.

11, P.M. She has been very unwell from diarrhœa and cold, but is now doing well.

14th. Pain in right groin extending down the leg, œdema in foot, tongue foul, bowels open, pulse 108; fomentation of poppy-heads to be applied to the leg, and ordered to take a mixture of sulphuric æther, opium, and camphor mixture.

From this time she gradually improved in health, and on Dec. 3rd was discharged cured.

CASE IX.—*Recurrent fibroid tumour.*—A. B., æt. 37, married; mother of one child; admitted into the "London Surgical Home" October 14th, 1859. Had an attack of profuse flooding in May last, and four others since that time, producing great debility and anæmia. On examination, a portion of a fibrous tumour, of the size of an orange, was seen projecting through the os uteri, and found to be adherent to its anterior lip; but it had no pedicle.

On Dec. 1st, I detached the tumour from the os by a pair of scissors; but in a day witnessed its reappearance: and although I cut a portion off on the 5th, yet on the 15th it was again protruding into the vagina, and called for further excision. On the 29th, another large portion was removed. After each operation, the patient suffered much sickness and depression, with loss of appetite. January 12th, 1860. I removed several pieces from the morbid mass which then filled up the vagina. Feb. 2nd. Excised three more pieces. March 29th. Cut off a portion as large as a hen's egg; and on April 5th, two large pieces, the size of the fist, for the morbid growth then protruded even through the vagina. On April 24th, I removed large quantities again. She was very weak after this operation, and soon after left the institution; but a few weeks subsequently I removed another large piece at her lodgings. From this period I lost sight of her, but subsequently learnt that she had fallen into the hands of the Rev. Mr. Read, the professed cancer curer, and had died.

The case was evidently hopeless, and her term of life had been materially shortened both by her sufferings with the tumour and by the repeated operations to reduce its size, each operation appearing to leave her weaker.

II. POLYPI OF THE UTERUS.

Besides the fibrous polypi of the uterus, to which I have as yet called attention, there are yet other varieties of heterologous growths from that viscus, of which the following are specially distinguished — viz., the "glandular polypus," the "cellular," the "vesicular or cystic," and the "erectile or vascular" polypus. The last-named variety is a sort of pathological curiosity: it grows by a broad base from the fundus uteri, and is excessively vascular. Having no practical knowledge of this form of polypus, I shall say no more about it. Of the others, the "vesicular or cystic," is simply a modification of

the common fibrous polypi, having the tissues loosely connected, so as to form numerous cysts throughout it, which are filled with albuminous fluid. Or it may possibly be sometimes an altered variety of the next described "cellular" polypi.

These "cellular" polypi are otherwise named "gelatinous," "mucous," "vesicular," and "fibro-cellular." The last name is applied to them by Dr. Barnes (*Op. cit.* p. 25), who thus speaks of them :—"These polypi most commonly spring from the cavity of the cervical canal; they are but rarely found in the cavity of the uterus, and perhaps this may be accounted for by the scarcity of the cellular tissue in the constitution of the mucous membrane in this latter situation. The microscopical characters of these polypi are similar to those of the fibro-cellular sub-mucous tissue. Mr. Paget has accurately described them as presenting "delicate fibro-cellular tissue; in fine, undulating and interlacing bundles of filaments. In the interstitial liquid, or half-liquid substance nucleated cells appear imbedded in a clear or dimly granular substance; and these cells may be spherical, or elongated, or stellate, imitating all the forms of such as occur in the natural embryonic fibro-cellular tissue; or the mass may be more completely formed of fibro-cellular tissue, in which, on adding acetic acid, abundant nuclei appear. In general, the firmer the polypus is the more perfect, as well as the more abundant, is the fibro-cellular tissue." To this it may be added, that these polypi are covered by mucous membrane, containing blood-vessels in greater or less abundance. The size of these polypi varies greatly; they seldom, however, attain the magnitude sometimes exhibited by the fibrous polypi. In colour they have a pale violet or yellowish tint, and in this respect, as well as in their consistence, they resemble the mucous polypi of the nose.

The "glandular" is otherwise known as the "Nabothean" polypus, because it appears to originate in hypertrophy and dilatation of one of the glandulæ Nabothi of the neck of the womb. The surface is very vascular, hence these tumours give rise to serious hæmorrhage and copious mucous discharges, as also to great irritation. Dr. Lee says (*Medico-Chirurgical*

Transactions, vol. xix. pp. 127, 128), "One of these bodies (*i. e.*, the glandulæ Nabothi) is sometimes converted into a cyst as large as a walnut, or even a hen's egg, and hangs by a slender peduncle from the cervix or lip of the os uteri. It is smooth and vascular, and contains, in some instances, a curdy matter, or yellow-coloured viscid fluid."

The removal or destruction of these varieties of uterine tumours is effected in a similar manner to fibrous polypi. Small soft excrescences from the os uteri may even be eradicated by the finger nail, or when they cannot be thus reached, the instrument invented by Sir Charles Locock, resembling an elongated finger-nail, or scoop, will be found useful; or otherwise, again, they may be pulled away by a pair of vulsellum forceps, with or without a certain amount of torsion, according to their size and proneness to bleed. For tumours of larger size ligature and excision become necessary, or the latter only by the probe, bistoury, or scissors, or by a ligature of silver wire tightened around their base until it cuts its way through.

For some small growths caustics have been employed, and among these the acid nitrate of mercury and nitric acid.

III. CAULIFLOWER EXCRESCENCE OF THE UTERUS.

The morbid growths from the uterus as yet considered belong to the "innocent" or "benignant" class of tumours, but those known under the name of cauliflower excrescences are nearly related to growths of a malignant character, and are sometimes spoken of as epithelial cancer. These excrescences grow rapidly, have a soft elastic feel, and an irregular or finely lobulated appearance, and, what is very characteristic of them, they bleed on the slightest touch, like vascular fungoid growths elsewhere. They grow from the mucous membrane of the os or cervix uteri, and consist in appearance of a congeries of pale red, lenticular and moderately firm bodies, and are microscopically composed, according to Rokitansky, of "hypertrophied papillæ, composed of epithelial cells, richly supplied in their interior with large and delicate vessels, and covered by a thick layer of epithelium. The enormous looped capillaries of the cauliflower excrescence explain the abundant hæmor-

rhages, and the profuse serous discharges which attend it; whilst the absence of that solid structure which is found in other forms of epithelial cancer accounts for the favourable results that have followed its extirpation."

Fortunately this close ally to malignant disease may be cured, if treated early, by excision, and it does, as a rule, not reappear. But this remedy is applicable only when the excrescence occupies a portion of the circumference of the os uteri; when it has invaded the whole of that part, then I hold operative proceedings to be useless, and well nigh unjustifiable.

To carry out the process of excision the patient should be placed in the lithotomy position, and the vagina drawn backwards by the "duck-bill" (Bozeman's) forceps, just as for vaginal fistula. The excrescence should next be seized well back by a pair of vulsellum forceps, and then completely cut away by a blunt-pointed bistoury, a piece of the subjacent tissue of the os uteri being removed with it.

If there be much bleeding, I prefer touching the surface with strong nitric acid, of course taking care to guard the surrounding parts from being corroded, and, if necessary, after this to plug the vagina with pieces of ice; beyond this it is better to apply no dressing, merely syringing out the parts with water night and morning. This simple mode of operating is far preferable to that by ligature, the latter often producing great constitutional disturbance, and, moreover, it appears by the history of recorded cases, that a far greater number die after the removal by ligature than by the knife. As far as we can judge there is in such cases as just described a very fair chance of arresting the disease for life, and certainly for some years.

If, however, the disease is found to involve the whole, or the greater part, of the os uteri, then no possible good can arise from any operative procedure; on the contrary, the great hæmorrhage produced by any interference very materially aggravates the danger, and tends to shorten life. This cannot be too much impressed upon the obstetric surgeon, as we find the contrary practice to be still in vogue with some. During the past year I met with a case of a lady who had borne thirteen children, and in whom the disease had involved the

whole of the os uteri. An obstetric physician was in the habit of performing one or more operations every week for the removal of portions of the growth, although the hæmorrhage was afterwards always so severe as to exhaust the patient seriously. I advised very strongly that she should do nothing but apply astringent injection, and on my recommendation she consulted two of the most eminent physicians in London, who both concurred with my advice; the result was that the poor lady returned to her home to die gradually of the disease, and was spared from the tortures of repeated operations.

CASE.—*Cauliflower excrescence of uterus.*—Mrs. A.W., æt. 32, married; one child born ten years ago, admitted into the "London Surgical Home" Oct. 15th, 1860. About three months ago was first taken ill, but had no medical advice for two months, when she was under the care of Mr. Obie, of Harewood-square, who treated her for the great weakness, pain in back, and discharge from the womb, from which she was suffering. Under his care the discharge lessened, but did not stop. He kindly recommended her to come under my care. On examination, I found an epithelial growth on the anterior lip of the os uteri.

Oct. 25th. The patient being under chloroform, I removed the anterior lip of the os, and then for precaution the posterior; afterwards applied nitric acid, and plugged the vagina with ice.

Nov. 1st. The patient has progressed very favourably, the wound healing by healthy granulations. I applied caustic to it.

Nov. 20th. She left the Home quite well. There is no discharge from the uterus, and she has wonderfully improved in health. There is slight enlargement of the posterior lip, which looks unhealthy. To this I applied the actual cautery. The patient has quite lost the watery discharge.

CHAPTER VIII.

OPERATIONS ON THE UTERUS.

UNDER this head I propose to bring together for consideration several operations on the uterus, which require only a brief notice. These are incisions of the os and cervix uteri, hysterotomy, dilatation of the os for stricture, and excision of that part.

Excision of the os uteri has been proposed and practised for scirrhus; but the results are such as not to afford encouragement to the plan; and, in my opinion, all operative proceedings on the organ, when so seized by malignant disease, are useless, and should never be resorted to.

Incisions of the os and cervix uteri have been resorted to in the following conditions:—1, for hypertrophy; 2, for imperforate os uteri and retained menses; 3, for contraction of the os and cervix; 4, for certain displacements of the uterus; 5, for floodings in connexion with tumours of the uterus.

1. *For hypertrophy, or enlargement of the os uteri,* accompanied by congestion, and whether with or without ulceration, free scarifications of the os, carried sometimes into the cervix, will be found much more speedily effectual than the application of caustics, or of the actual cautery, especially if proper constitutional treatment be adopted at the same time. The medicine I find most useful in such cases is the bichloride of mercury, $\frac{1}{24}$th or $\frac{1}{30}$th of a grain, with tincture of bark in water, and continue its use for a considerable time. At the same time the bowels must be kept regular and the diet attended to, stimulants and spiced food being avoided.

The following cases illustrate the line of practice I recommend:—

CASE L.—*Enlargement and ulceration of the os uteri: Caustics and incisions. Cure.*—S. M., æt. 34, admitted into the "London Surgical

Home" March 22nd, 1859. Is married, and has one child. Since the birth of her first child, twelve years ago, has had five premature labours, and has suffered much from weakness and pain in the back and womb. Has always menstruated very regularly. On examination, I found the lips of the uterus ulcerated, and the organ itself much enlarged, and a small vascular tumour in it, which was very painful when touched. I ordered bark and the bichloride of mercury three times a day, and touched the uterus with caustic. April 2nd. General health improved. I applied caustic again. April 12th. Again applied caustic; uterus looking more healthy, but she suffers much sometimes from pain and a sensation of fulness in the womb. April 22nd. I freely scarified the womb, which bled considerably, giving great relief. I also ordered her quinine three times a day. May 1st. Applied caustic. May 11th. Uterus much smaller and tumour quite disappeared, much less ulceration; caustic applied. Much stronger, and able to go out in a Bath chair.

20th. Uterus normal size, and not at all tender on pressure. Ulceration all disappeared except one little spot, to which I applied caustic. General health quite restored.

23rd. Left quite cured.

Practical Remarks.—No real relief took place by the application of the caustics until the os had been freely scarified, and then the relief was most marked, and the cure speedy; and if I had scarified in the first instance, as in many other cases, I have no doubt she would have been well sooner. It will be seen that, as it was, she got well in two months.

Case II.—*Congestion of uterus: Hypertrophy of os and cervix: Treatment by incisions: Cure.*—E. C., æt. 35, married; has had three children and five miscarriages; admitted into the "London Surgical Home" Oct. 31st, 1860. About a year ago, after undergoing great exertion, felt a sinking sensation at the lower part of the abdomen as if the womb had fallen down. Ever since has suffered from great pain and a dragging round the loins, increased by exertion. Has always had bad labours, and the miscarriages have taken place about the third month. On examining her I found the os and cervix uteri in a state of great hypertrophy, but there was no ulceration. Nov. 4th. I freely incised the os and cervix, which bled freely, affording almost instant relief. Ordered bark and bichloride of mercury. 7th. I incised the os and cervix again. 11th. Repeated the operation; the uterus is much better. 20th. Applied caustic. 24th. Congestion of uterus nearly disappeared; applied caustic again. 27th. Dismissed perfectly cured.

Case III.—*Enlargement of os and cervix uteri: Caustics and incisions: Cure.*—A. W., æt. 37, married; has had eight children. Admitted into the "London Surgical Home" June 28th, 1860. Since last April has suffered from pain in the womb and back, with a sensation of heat in the pelvis. On examining I found the lips of the os uteri puffy and very hypertrophied, the cervix being also enlarged. July 1st. I scarified the os freely, and ordered her bichloride of mercury and bark three times a day. July 16th. Applied caustic to a small ulcerated surface on the os. 21st. Again scarified the uterus. August 6th. On examining the uterus I found it looking much smaller and better; but there was a small ulcerated spot, to which I applied caustic. August 4th. Complains of pain and fulness in the womb. Iodine was applied to-day, and a zinc injection ordered night and morning. 27th. Not so well. Ordered carbonic acid

gas to be injected into the uterus, which gave relief. Sept. 7th. Since the last date she has complained of great pain, and has had iodine applied to the os uteri repeatedly with marked benefit. Sept. 13th. I examined her, and found her uterus nearly well, with the exception of a very small spot of ulceration, which I touched with caustic. She gradually became convalescent; and on October 9th, left for the country, quite well in every respect.

2. *Incisions for imperforate os uteri and retained menses.* In this unusual condition, it is necessary merely to puncture with a bistoury or a pair of scissors, or otherwise to apply caustic so as to produce an eschar. One such case I am enabled to quote from my own practice, illustrating what operative measures are needed, and the peculiar fatality so often observed. But notwithstanding the frequent loss of such cases after operation, we cannot forego operating, because, if left alone, matters become progressively worse, the retained menstrual fluid distends the uterus and its appendages, and death sooner or later must ensue; whereas, if we remove the impediment, we give the patient a chance of cure the best possible under the circumstances.

CASE.—*Imperforate os uteri and retained menses: Puncture: Death.*—S. L., æt. 16, the daughter of a monthly nurse, was brought to me at the "London Surgical Home" by her mother. She had never menstruated. About every month she suffered great pain in the abdomen and back, lasting for a period varying from a few hours to three days. This was accompanied by all the usual symptoms of menstruation, without, however, there being any external appearance. The pain was described as being so severe as to cause her to roll about the floor in agony. She had all the usual marks of confirmed puberty, and was tall and well made.

On making an examination per vaginam, I found it terminated superiorly in a perfect cul-de-sac. The neck of the uterus could be felt in its normal position; but no os uteri was distinguishable. The lips of the os could be obscurely made out, covered, as it were, with the lining membrane of the vagina. By examination through the rectum, the uterus could be felt increased in size, and presenting to the touch a sense of fluctuation. It was evident that the case was one of retained menses from congenital closure of the os uteri. The general health was becoming a good deal affected. I explained to the mother that the closure of the os uteri must have existed from birth, and that nothing but an operation would be of any service.

She was, therefore, admitted into the "London Surgical Home" on March 5th, and on the 8th of the same month she was subjected to the influence of chloroform, and further examined by Dr. Hall Davis and Mr. Philip Harper, who both agreed with me as to the nature of the case and the necessity of an operation. I therefore proceeded to operate in the presence of those gentlemen and Dr. Menzies, Messrs. Ince, Ince jun., Andrews (all of Pimlico), Mr. Spencer, and Dr. Giles. She was placed in

the lithotomy position, and I passed my finger into the vagina until the end of it was in contact with the obscurely-felt lips of the os uteri. I now introduced a pair of sharp-pointed straight scissors along the finger to the obstruction, and gently pressed them through it, without opening them. It required very little force to penetrate the membrane. On withdrawing them, a quantity of thick fluid, of treacly consistence, but of the colour of red-currant jelly, immediately flowed out. I now passed one finger into the rectum, whilst gentle counter-pressure was made on the abdomen, and thus a quantity of the fluid flowed out (about five or six ounces, subsequently increased to nearly three-quarters of a pint). The vagina was syringed out with warm water, a napkin and binder put on, and she was placed in bed. When she had recovered from the chloroform, one grain of opium was given to her, which was to be repeated every six hours. There was not the least hæmorrhage.

The following account of her progress is from the notes of Mr. Wratislaw, the visiting surgeon in charge:—

March 9th. Nine A.M.: Has had a good night, and felt so well this morning, that she was found sitting up in bed doing some crochet work. The thick fluid had continued to flow during the night, and the nurse had collected about six ounces of it. It had now changed to a brighter red, having the appearance of natural menstruation.—Nine P.M.: Slight sickness had come on in the course of the day, and there was some uneasiness with tenderness in the epigastrium. The countenance was swarthy; tongue coated. Ordered hot linseed poultices over the abdomen; and to take three grains of grey powder with five grains of Dover's powder at bedtime, and effervescents every three hours.

10th. At three A.M., as she had not slept and was very restless, a grain of opium was administered as a suppository. Not being relieved, another grain of opium was given by the mouth. This produced no effect, and at nine A.M., vomiting of dark bile came on, and was very frequent. The pain in the epigastrium was severe; pulse 120; tongue foul; bowels have not acted. She lies upon her back with the legs stretched out. Turpentine epithems were applied over the abdomen, and a dose of castor oil given. This produced dark bilious motions, but the sickness continued. In the course of the day tympanitis came on, and the tongue became very dry; pulse 130, very weak. She became so prostrate and sinking in the evening, that frequent doses of ether were administered.

11th. Had a bad night; the vomiting of the same bilious matter is incessant; pulse 140; tympanitis and tenderness of the epigastrium; tongue dry and brown, except at the edges, where it is red. A grain of calomel was given, and a blister applied to the abdomen. The sickness ceased after this, but she continued to sink, and died soon after four P.M., continuing perfectly sensible to the last.

The following account of the post-mortem appearances was drawn up by Mr. Leggatt, of William-street, Lowndes-square, her usual medical attendant, and Mr. Philip Harper:—

Examination twenty-six hours after death.—On opening the abdomen, there was not any appearance of general peritonitis; but on examining that portion of the intestines which was in contact with the uterus, there was evidence of local inflammation, plastic lymph having been recently thrown out. The uterus was large, and had recovered from its retroflexed condition. On being removed from the body, it was laid open through the cervix. Its lining membrane was very vascular and injected, from the long contact of the menstrual fluid. The puncture had been made into

the os, and its surrounding edges presented a dark and ecchymosed appearance. The ovaries were enlarged, softened and granular in appearance and feeling. Liver quite healthy.

3. *Incisions of the os and cervix for contraction or stricture*—are now and then called for, on account of difficult and painful menstruation and concurrent sterility. However, incisions are not the only means resorted to to cure this morbid state; for dilatation by catheters or bougies, caustics, sponge tents, and other mechanical contrivances, are employed, and some of them, at times, more beneficially than incisions. But incisions are called for where dilatation has failed, and particularly in chronic cases, where the tissue of the os uteri has become so indurated as to have a cartilaginous consistence.

The cutting necessary to relieve the constriction is otherwise called *hysterotomy*, and is effected by a probe-pointed bistoury, or by a hysterotome, introduced within the os uteri, and then directed outwards on opposite sides, so as to make two deep incisions.

I could adduce several instances where the protracted use of ordinary elastic, or of metallic bougies, has been successful; but two will suffice for illustration. However, before detailing them, I would call attention to a set of dilating instruments I invented, extending the excellent plan suggested by Mr. T. Wakley for strictures of the urethra to the treatment of constricted os uteri. I have several elastic tubes, much like catheters, of different bore, and a sort of long stilette: this last is first pushed through the mouth of the womb, through the speculum, as in the ordinary method of introducing the uterine sound. After this is done I pass over the stilette, first the smallest size elastic tube, and allow it to remain for a longer or shorter period, according to the pain produced. When this has fulfilled its purpose it is withdrawn, and a tube of the next size larger introduced in its place. It will be found that cases which present almost insuperable difficulties to their dilatation, readily yield under this simple contrivance, and without producing any bleeding or laceration, the not unfrequent results of ordinary dilatation. The most advantageous period for the introduction of the instrument is immediately

after the secession of the catamenia, before contraction of the canal has taken place, and it has returned to its usual size.

I would wish to observe here, that I have never seen the necessity for the introduction of caustics into the cervix for the purpose of dilatation, and I think that no one who has studied the delicate structure of the lining membrane of the uterine cervical canal, and who recollects the necessity for its expansion and contraction at each menstrual epoch, would ever be induced to destroy any portion of it by such means. I may also incidentally observe, that I have had many cases come under my notice where partial occlusion of the os and cervix has been the result of their use; and I feel quite certain that the use of such agents is a more frequent cause of sterility than is generally supposed.

Case I.—*Stricture of the cervix uteri.*—Mrs. F., married at the age of 27, had always suffered from dysmenorrhœa, for which she consulted me three years after marriage. On examination I found it impossible to introduce a uterine sound on account of the firm constriction of the cervix uteri. Having first enforced a separate bed, I commenced the treatment of the case by passing the smallest size male elastic bougie, one of the firmer sort; having succeeded in this, I gradually increased the size, and after three months' perseverance was able to pass one of Simpson's large uterine dilators. The result of this treatment was the complete cure of the dysmenorrhœa, and in a short time afterwards this lady became pregnant, and at the full period was delivered of a healthy child.

Had I possessed at this period the set of dilators I now employ, a favourable result would have accrued in a much shorter period, and have involved less discomfort and difficulty both on the surgeon and patient.

Case II.—*Stricture of cervix uteri with displacement.*—Mrs. C., a lady from Scotland, æt. 31, consulted me in the early part of 1856 on account of the following conditions. She had been married a second time, but had never borne children, although she believed that about a year after her first marriage she had a miscarriage. She suffered considerable pain at every menstrual period. On examination, I discovered a reflexion of the os and cervix, and on attempting to pass the uterine sound I found a stricture not to be overcome. However, I commenced treatment by using small elastic bougies and catheters, and was at length able to dilate the strictured parts; on each occasion of its introduction the instrument was allowed to remain as long as it could be borne without discomfort. Two months' steady perseverance effected such a change that I was enabled to pass a full-sized dilator.

The painful menstruation ceased, and the reflexion of the uterus was completely cured. After her return home she became pregnant, and at the end of her full term was confined of a child.

4. *Incisions for certain displacements of the uterus.* I am

convinced from observation that some cases of displacement of the uterus forwards or backwards, where the body of the womb is bent, as it were, upon the os and cervix, occurring in women not pregnant, and independent of abnormal conditions of the rectum and bladder, may be permanently cured by an incision carried up through the cervix along the contracted part. For it seems that the displacement, however originally produced, is kept up by a contracted state of the uterine muscular fibres, just above the cervix, on one side, which pull downwards the fundus. In fact, it is well known, that though many displaced uteri may be restored, by means of the uterine sound, to their normal position, the advantage gained is very transient; to such, I believe, incisions as proposed offer a permanent cure.

5. *Incisions for flooding consequent upon fibrous tumours* of the uterus have already (p. 197) been referred to, and their value exemplified, and need not again be taken into consideration. They are made in the same way as those for constriction of the os.

CHAPTER IX.

STONE IN THE FEMALE BLADDER.

Urinary Calculi are probably formed nearly as frequently in the female bladder as in the male; but the shortness of the female urethra and its remarkable degree of dilatability, so commonly provide means for a ready and spontaneous escape of the stone before it arrives at any great size, that the surgeon is less frequently consulted by women suffering from stone than by men.

Diagnosis.—The symptoms of calculus in the female are somewhat analogous to those in the other sex, but differ in this, that they are particularly liable to prove fallacious. Nothing is more common than for hysterical girls to complain of pain at the neck of the bladder, and at the extremity of the meatus, of frequent calls to micturate, and of a sudden arrest of the flow of urine before the bladder has been emptied. But upon examination by a sound or catheter, no stone can be detected. It is also by no means uncommon to find the female bladder occupied by a solid substance, very different in form and structure from ordinary calculi. Many cases are on record in which the female bladder has become the receptacle of extraordinary nuclei. A case is related in the *Medico-Chirurgical Transactions* (vol. i. p. 123), by Mr. Thomas, in which an ear-pick was extracted from the bladder of a young female.

Dr. Toogood, formerly of Bridgewater, in his lately published and most interesting volume, *Reminiscences of a Medical Life* (page155), relates two cases, in which the surgeon accidentally allowed a catheter to slip into the female bladder. In one case it was in the bladder fifteen days, and produced but slight irritation. It was removed by dilating the urethra by a sponge

tent, and then introducing the finger, so as to direct the catheter into the long axis of the bladder, and seizing it with a pair of forceps, as recommended by Sir Astley Cooper. In the other case, it was in the bladder seventeen days, and removed in the same manner.

In January, 1853, a young girl was admitted into St. George's Hospital under Mr. Hawkins (*Lancet*, May 28th, 1853), who had suffered from symptoms of stone in the bladder for four years, in consequence of having passed a hair-pin through the meatus into the bladder. Attempts had been made repeatedly to extract it, but without success. On her admission the urine was found to be offensive, and it contained a large quantity of ropy mucus, but no blood. It came away involuntarily at first, but not afterwards, though the patient was obliged to pass it very frequently. When the sound was introduced, a foreign body, not easily moveable, was felt in the bladder. It was extracted with extreme difficulty by first incising and then dilating the urethra and introducing the forceps. The hair-pin was broken on extraction, and was surrounded by an incrustation of triple phosphate, with phosphate of lime. The urine was alkaline. After the operation, she could not retain her urine more than three hours at a time, except at night. In this, as in many cases of calculus in the female, there was, before the extraction, rather an impediment to the retention of urine than a difficulty in passing it.

Among other symptoms of stone in the female, it may be noted that the meatus is always dilated, that there is always pain after passing the urine, generally pain in sexual intercourse, and the urine often deposits a mucous, and sometimes a sandy, sediment. Frequently there is vaginal cystocele in the first instance, followed by prolapsus uteri. Although the urgency of these symptoms varies a good deal in different cases, there is usually much suffering. Sir Astley Cooper says (*Lectures on Surgery*):—"I think the symptoms of stone in the female are more urgent than those in the male. It is horrible to witness the sufferings which a woman experiences in consequence of this disease. She has a dreadful pain at the extremity of the meatus urinarius, and in addition to this, there is

a forcing down of the lower parts of the pelvis, as if they were about to protrude; a frequent disposition to make water, and all the pains suffered during delivery. There is generally a prolapsus uteri, and a discharge of bloody urine. In addition to these symptoms, there is almost constantly an incontinence of urine, a great urgency to discharge it, and an incapacity to retain it." (Cooper's *Lectures on Surgery*.)

These symptoms, or some of them, may arise from scirrhus, or from chronic inflammation of the mucous membrane of the bladder, polypous tumours within the bladder, or excrescences in the meatus. The detection of the stone by the sound is the only satisfactory evidence of its existence.

Treatment.—Although stone in the female does not always produce much distress, yet, when discovered, it ought not to be allowed to remain, as it may grow to a size indefinitely large; and, if the patient should become pregnant, it may prove a source of great difficulty and danger during parturition, and may even produce vesico-vaginal fistula.

The three ways of removing calculi from the female bladder usually resorted to are—incision, dilatation of the meatus, and lithotrity, with or without dilatation.

1. *Incision.*—Lithotomy in females is much more easy of execution, and less dangerous to life, than the same operation in the male subject. It may be done in various ways, but until recently the plan was to divide the urethra and neck of the bladder, and introduce a pair of forceps. The objection to this operation is, that incontinence of urine is apt permanently to follow the operation. The late Mr. Hey, of Leeds, cut two female patients for the stone, both of whom were afterwards unable to retain their urine. A modern method is to incise the anterior margin of the meatus, and then gradually dilate the remaining portion of the urethra until the finger can be passed into the bladder. But even this plan is often followed by a greater or less degree of incontinence of urine.

2. *Dilatation of the Urethra.*—The female urethra is well known to be capable of great dilatation, but few practitioners are aware either of the extent to which it may be dilated, or of the conditions on which that dilatation can be effected without

laceration or subsequent incontinence of urine, or any other injury. In regard to the dilatability of this canal, there is ample evidence that it will often admit a good-sized calculus to pass through it, and numerous examples are adduced by surgical writers in which calculi of immense size have been spontaneously voided through the meatus urinarius, either suddenly and without pain, or after more or less time and suffering. Heister mentions several well-authenticated instances of this kind. Middleton also has related a case where a stone weighing four ounces was expelled in a fit of coughing, after lodging in the passage a week. Collett speaks of another instance, where a stone about as large as a goose's egg, after lying in the meatus urinarius seven or eight days, and causing a retention of urine, was voided in a paroxysm of pain. (See Cooper's *Surgical Dictionary*, Art. "Lithotomy.") Dr. Molineux relates a case (*Philosophical Transactions*) in which a woman voided a stone of which the long circumference was between seven and eight inches, the shortest circumference (in the thickest part) five inches and three quarters. I have myself extracted a stone through the dilated meatus three inches and a half in circumference; and in the case already quoted, in which Mr. Thomas extracted an ear-pick from the bladder, he says, "The left forefinger was most easily introduced, and, I believe, had the case required it, both thumb and finger would have passed into the bladder without the smallest difficulty." It is clear, therefore, that there is no absolute or mechanical necessity for incising the canal in order to allow ordinary calculi to pass. Still, objections have been brought against the practice of dilatation:—1. That it frequently takes a long time and gives great pain to dilate it effectually. 2. That laceration is liable to occur. 3. That incontinence of urine has sometimes followed. To these objections it may be replied, that—1. The tediousness of the operation and the pain it produces, are objections, the force of which has been dissipated by the introduction of anæsthetics into operative surgery; and in such an operation chloroform has a double claim upon our notice; for it not only prevents all pain, but tediousness likewise. So long as the patient is conscious, the process of dilatation is

rendered difficult and tedious by the contraction of the sphincter fibres of the meatus; but under chloroform these fibres are relaxed, and the dilatation can be accomplished easily and quickly. 2. The second objection is disposed of in the same way. Laceration can only occur in the walls of this loosely arranged structure, in consequence of the rigidity of the muscular fibre: relax this rigidity by chloroform, and the danger of laceration no longer exists. 3. Incontinence of urine does not occur after dilatation under chloroform. And I think this may be thus explained. When the dilatation has been a tedious and painful process, it has at length been accomplished (physiologically) by exhausting the irritability of the fibres, and thus rendering them powerless for the time; or (mechanically) their structure may have given way under tension; or both these circumstances may have occurred; and in either case, subsequent imperfect contraction, and consequent incontinence, are perfectly explicable. Whereas under chloroform there is no wasting or bearing down of the local nervous irritability, nor, as the rigidity of the canal is destroyed, is there any danger of laceration; there is, therefore, no probable cause for the subsequent production of incontinence. I state these things advisedly, and after considerable experience, having had frequent occasion to dilate the female urethra, not only in cases of stone in the bladder, but in operating for vesico-vaginal fistula.

I ought, however, to add, that Mr. Fergusson, Mr. Coulson, and other modern surgeons, advise, when the stone is large, that the anterior portion of the meatus should be divided, and the remaining portion dilated. In this way Mr. Fergusson has extracted a stone three inches in circumference. Mr. Coulson, however, in his admirable and practical work on *Lithotomy and Lithotrity* (p. 261), rather recommends lithotrity when the stone is very large.

Lithotomy in the female, as it was formerly performed, is an operation which should be utterly discarded from practice. Sir Astley Cooper says (*Lectures*, p. 368):—"The extraction by dilatation is greatly to be preferred, not only because there is much less danger in it, but because it does not leave behind it the melancholy consequences of lithotomy in the female. I

mean the loss of the retention of urine. A woman who undergoes the operation for stone, generally loses, for ever after, the power of retaining her urine. Her condition, therefore, is most deplorable. The constant discharge of urine and the constant excoriation of the parts render her offensive to all around her; her health is broken, and she is completely cut off from all society." Dr. Blundell, my highly respected preceptor at Guy's Hospital, and, before him, Dr. Haighton, strongly recommended the removal of calculi from the female bladder by dilatation of the urethra. Nothing more need be added to justify me in urging my brethren in all cases to avoid incision of the meatus. Dilatation under chloroform is both safe and easy, and will generally allow the stone to be removed entire; or if it be very large, it may easily be broken down by lithotrity.

Case.—At page 141 of this work will be found a case in which I extracted a stone from the female bladder by dilating the urethra under chloroform. The case is interesting in many points. The calculus had been the cause of a difficult labour three years before, and, by its pressure, a vesico-vaginal fistula had been produced. Although the stone was three inches and a half in circumference, it was extracted without much difficulty, and with a very slight laceration of the anterior portion of the urethra, which healed, and the patient recovered, without any difficulty in retaining the urine, which had for three years previously been discharged through the vagina.

The largeness of a calculus alone can justify other measures than dilatation of the urethra for its extraction, and when this reason for such further means is furnished, we have now an operation recommended and acted on by Dr. Marion Sims, of New York, U.S., whereby the necessity of cutting the urethra is obviated. It consists in making an incision through the vagina, low enough down to avoid the peritoneum, and about an inch in length, into the bladder, upon a staff previously introduced through the urethra. This done, the stone is seized and extracted by the forceps, just as in the common operation of lithotomy in the male. The calculus being removed, the edges of the wound are brought together by metallic sutures,

as in the operation for vesico-vaginal fistula, and the same after-treatment pursued. The advantage offered by this plan is, that by leaving the urethra intact, the incontinence of urine so common after the usual operation is avoided. The operation, besides, has the approval of Bozeman, more especially in women who have borne children, and it has obtained the recommendation of Mr. Erichsen. No case of stone in the female bladder has, since the operation was proposed, occurred to me, but I feel convinced of its utility and advantages, and intend to put it into practice when I encounter a proper case.

CHAPTER X.

OPERATIONS ON THE EXTERNAL SEXUAL ORGANS.

UNDER this head I propose to treat of the operations for (A) Imperforate Hymen; (B) Encysted Tumours of the Labia; (C) Irritation and Hypertrophy of the Clitoris; and (D) Vascular Tumours in the Meatus Urinarius.

A.—IMPERFORATE HYMEN.

In its natural state, the virgin hymen closes the vagina imperfectly, generally occupying the inferior portion of the ostium vaginæ in the form of a semilunar membrane, leaving an aperture in the upper portion from the size of a quill to that of a thimble, for the transmission of the menstrual fluid. But it occasionally happens that the membrane is congenitally entire or imperforate. This may not be discovered until puberty, when the female will suffer severely every month by the accumulation of the menstrual secretion within the vagina, producing ultimately a bulging out of the occluding membrane in the form of a pelvic tumour, and causing severe pain and other serious symptoms. The uterus as well as the vagina, and even the Fallopian tubes, become, in course of time, distended with the menstrual fluid, and at length an operation is urgently called for. The method of relieving this condition has been to divide the hymen by a crucial incision, and after the escape of the black, treacle-like and fœtid fluid, to syringe the uterus well out with warm water, and afterwards to apply a bandage around the abdomen.

This appears very simple and easy. Yet many young women have lost their lives by this operation from subsequent peritonitis; and the subject is one which is worthy of careful investigation.

The fatality of this operation has been ascribed by Dr. Blundell to the epidemic influence of puerperal fever, when raging in the neighbourhood. His opinion is worthy of great respect: I therefore quote his words. He says, "It seems that where puerperal fever is epidemic, women in whom the hymen has been divided in this manner, are liable to inflammation of the peritoneum afterwards, in the same way as they are liable to similar inflammation after they have been recently delivered. Cases of this kind, two in number, if my memory serve, have been mentioned by Denman; and a few years ago, at the London Hospital, a case occurred, for a reference to which I am indebted to Mr. Mitchell, of Kennington. In this case, the accumulation of the catamenia amounted to two gallons or more. The obstruction was divided; inflammation of the peritoneum ensued, but the patient was saved by vigorous antiphlogistic remedies. As this is the case, if I had a patient under my care, I should dissuade her from submitting to the operation till the epidemic disposition to puerperal fever had subsided; even though she waited for three or four years; for, without pretending to assert that abdominal inflammation from this cause is equally dangerous with the genuine fever of puerperal women, I think it not impossible that it might cost her her life. Why the discharge of the accumulated catamenia should, like parturition, give rise to peritonitis, I do not pretend to explain; but the fact is curious. Is there any analogy between the lochia and the catamenia; and is this the cause of these similar effects? Perhaps some great pathological truth lies concealed here." (Blundell's *Midwifery*, p. 689.)

Without for one moment questioning the propriety of deferring this, or any other operation upon the pelvic or abdominal organs, whenever and wherever puerperal fever is epidemic, I have a strong impression that fatal peritonitis has succeeded this operation when there was no such influence to account for it. At all events, many such cases are recorded without any reference being made to the existence of an epidemic of puerperal fever.

Treatment.—When the surgeon is consulted in the case of a young female before the age of puberty, on account of an occlu-

sion of the vagina, it will generally be found that the united parts may be separated by the thumb of each hand being applied, and some little force used, the patient being placed in the lithotomy position. Cutting is rarely required in children. A piece of oiled lint should be introduced to prevent reunion of the separated parts, after they have been thus torn asunder. If the obstruction is of a longer standing, and the tissues are thickened and indurated, then the question to be considered is, how is it to be divided? Every author who has written on the subject recommends a crucial or stellate incision. This leaves the divided portions of the hymen to retract and remain on each side of the vaginal orifice; and when the operation is performed in the earlier stage, before puberty, or a few years afterwards, these relics of the thickened hymen may create no irritation of consequence; not so, however, when the patient has passed her twenty-fifth or thirtieth year; the divided portions do not then shrivel or so pucker up as to create no inconvenience.

Being strongly convinced that these two methods of dividing the hymen—viz., by the crucial and stellate incision—attended as they are by so many inconveniences, are not so eligible as a more perfect surgical procedure, by which the whole of the abnormal structure is at once removed, I recommend that the hymen be removed entire by a circular incision at the point of its junction with the labia.

The following cases will more clearly illustrate the views I wish to enunciate.

Case I.—*Imperforate hymen in an unmarried lady: Painful menstruation: Operation: Cure.*—Miss B., æt. 29, consulted me January 3rd, 1853, suffering from painful menstruation since puberty, and at every epoch so severely, that her health was seriously impaired. She had, in fact, become a confirmed invalid. She stated that the pain was accompanied with a sense of bursting, as if something must give way "at the mouth of the bladder." Considering it necessary that a vaginal examination should be made, I introduced my finger between the labia, and immediately found a firm resisting band which prevented its further progress. I then proceeded to make a visual examination, when I found a perfect closure of the vaginal orifice, but an enlarged meatus urinarius. She stated, upon further questioning her, that the menstrual discharge came from the mouth of the urethra; and on passing a probe into the lower part of the meatus, I found that it slipped into a tortuous canal below the meatus (the size of the probe) running up into the vagina. It was from this canal, evidently, that the menstrual fluid escaped. It was now

clear that the hymen was congenitally imperforate and thickened. I recommended that it should be removed, and promised her relief on future occasions of menstruation. Accordingly, having prepared her for the operation a few days previously, I placed her in the position for lithotomy, under the influence of chloroform, and then proceeded to dissect out the hymen by a semicircular incision on each side, so as completely and cleanly to remove the whole structure. No hæmorrhage of any consequence took place. The parts were dressed with lint soaked in oil; this dressing was repeated from day to day, and in one fortnight all the parts were quite healed, and at the following menstrual period she suffered no pain or inconvenience, and has continued well ever since.

Case II.—*Imperforate hymen in a married lady, obstructing connubial intercourse: Operation: Cure.*—Mrs. G., æt. 35, married eighteen months, was requested to see me by Sir C. Locock, February, 1854, who had ascertained from the patient that she had been married some eighteen months, but that her husband could have no proper connexion with her; that it was not his fault; that she had been in good health; and menstruation regular, although it commenced late in life. On examination, he found the vagina a cul-de-sac not more than a short inch, the urethra very capacious, and the patient described the menstrual discharge as coming through that orifice. The uterus could be distinctly felt per rectum, and appeared to be quite normal. Sir C. Locock advised her to return to town again when the catamenia were flowing, in order to ascertain whether the discharge actually issued from the urethral orifice, and then to stop in town for the purpose of having some operation performed.

On the 28th of February I had an opportunity of examining the patient, and after a very careful investigation, I discovered, about a third of an inch behind the meatus, a small projecting piece of mucous membrane like a cowpox pustule on the third day, and from this I saw some leucorrhœal discharge ooze out. Still I could not pass the smallest probe through this little projection. I then carefully introduced the little finger of my left hand into the bladder, and clearly ascertained that there was no communication with the uterus; indeed I could plainly feel this organ through the coats of the bladder, as well as through the rectum. I examined again and again, and could find nothing but a thick fibroid hymen completely obstructing the vaginal orifice, extremely unyielding. At last, seeing some more leucorrhœal discharge ooze out, and hearing from the patient that she occasionally had a considerable quantity of that secretion, I again tried, and ultimately succeeded in insinuating a very small probe through a valvular opening into the vagina, when the instrument readily passed two inches upwards. I therefore advised her to stay in town till her husband's arrival, and proposed, subject to the approval of Sir C. Locock, that she should undergo the operation of removal of the hymen. She remained accordingly.

Operation.—March 4th, 1854, the patient was placed in the lithotomy position, and chloroform having been administered with the assistance of Sir C. Locock and Mr. Nunn, I carefully dissected away the entire structure, and removed it in one piece. It was nearly a quarter of an inch thick in some places, and was found lined within and without by a mucous membrane, with a strong fibroid tissue intervening. A spacious and healthy vagina was then discovered, and a normal os uteri could be felt by the finger. A small speculum was easily introduced, and immediately on its removal the vagina was plugged with lint soaked in oil. The patient

was placed in bed, and opiates were given. No hæmorrhage of any consequence ensued. The urine was drawn off by catheter every four hours, and perfect quiet was enjoined. On the sixth day the bowels were opened by enema. The patient recovered without any unfavourable symptoms, and on the eighteenth returned home, having previously menstruated normally.

This mode of operating has been objected to on the ground that constriction of the vagina will occur in consequence of the circular incision being immediately around the constrictor vaginæ. This objection would hold good if no attention were paid to the after dressing; but if the plan be steadily followed which I have recommended—namely, plugging the orifice daily, after the first seventy-two hours, with lint soaked in oil—it will be impossible that any constriction can take place. In these two cases, as in several others which have come under my notice, certainly no constriction has followed the operation.

B.—ENCYSTED TUMOUR OF THE LABIA.

These tumours are met with of various sizes, but are generally circumscribed. Some authors assert that they are always semi-transparent; but this I believe to be a mistake, as I have not found them invariably so. If they are superficial, then they are semi transparent, but when deep-seated, they are covered on the outside by skin with more or less of cellular tissue beneath, and are therefore opaque.

Symptoms.—These are few in number, and, in the smaller and superficial kinds, slightly marked; but when the tumours attain a great size, or are attended by inflammatory action, then of course the symptoms are more prominent. The patient may complain of a certain degree of uneasiness and weight, aggravated by locomotion, by defæcation, micturition, or, if in the married state, by sexual intercourse. Some authors assert that the skin covering these tumours is rarely changed in colour; but my experience does not warrant this statement, as I have found the skin sometimes of a bluish, at others of a reddish-brown colour. When opened, they are found to contain fluids of different character in different cases, sometimes of a glairy nature, sometimes of a dark appearance, at other times of a puriform character.

Sometimes the contents are more or less solid.

These tumours may be caused by a fall or a blow on the soft parts, a long time antecedent to the formation of the cyst.

Diagnosis.—The slow growth of the tumour, and in most

cases the absence of pain, will distinguish this disease from simple phlegmon of the labia; and its encysted character from warty tumours.

Treatment.—There are several modes of treatment recommended:—

1. Simple incision, and evacuation of the contents. 2. Insertion of a seton through the tumour, so as to produce suppuration. 3. Dissecting out the tumour, care being taken that the entire cyst be removed. 4. Injections of iodine. 5. The actual cautery.

1. The first of these methods—namely, simple incision—may be practised with occasional success where the tumour is very superficial and semi-transparent.

2. The plan of treatment by seton I have never tried, nor do I think it one to be recommended.

3. The third kind of treatment—namely, dissecting out the entire cyst—is the mode which I greatly prefer, care being taken with the after-dressing to insure a healthy granulating surface at every spot. This may be accomplished either by dressings of dry lint, or by a cerate made of turpentine oil and resin cerate, equal parts, or by touching the surfaces with nitrate of silver.

4. The next best plan is injecting iodine, but as I have always found the last-named plan successful, I have never had recourse to injection.

5. The late Mr. Liston practised the actual cautery, but I cannot understand upon what grounds such a desperate remedy could be had recourse to, except the well-known fact that these tumours frequently recur after the ordinary modes of operation.

I shall only relate one case, in which the third kind of treatment succeeded.

Case.—*Encysted tumour of the labia in an unmarried lady: Operation: Cure.*—M. H., æt. 26, consulted me, complaining of great pain in the lower part of her back, pain down the inner part of the thigh, and pain in the left labium, extending back to the rectum: she stated that nine or ten weeks ago she suffered from acute pain at that spot; that ever since that period she has had considerable uneasiness there, and that now she feels a swelling. Upon examination, I found an encysted tumour of the left labium, between the vagina and the tuberosity of the ischium, running

up towards its ramus, about the size of a small pullet's egg. Feb. 28th. I ordered a dose of castor oil at bedtime, and on March 1st, proceeded to operate. The patient being placed under the influence of chloroform, and put in the position for lithotomy, and all hair being shaved off the labium, an assistant passed his finger into the vagina, and pressing the tumour forwards, an incision of an inch and a half was carefully made through the skin and sub-cellular tissue, down to the cyst, which presented a bluish aspect. Having dissected away, as much as possible, the surrounding tissues, which were closely adherent, I punctured the cyst for the purpose of saving the fluid, and then seizing it with a pair of vulsellum forceps, I dissected it out, dividing two or three arteries, which bled freely at first, but were stopped by pressure, plugged the space, which was about an inch and a half deep, with lint soaked in oil, and applied two interrupted sutures to the upper part of the wound, leaving the rest open. Ordered her to take opium, cold-water dressing to be applied constantly, and that she should suck ice freely.

She was very sick for the first twenty-four hours, but this evidently arose from the chloroform. On the third day I applied the black wash to the wound, varying the dressing by sometimes applying dry lint, and at others touching the granulating surfaces with caustic, and then applying dry lint; after six weeks of uninterrupted attention, the parts healed well and soundly, and she left town for the country to recruit her strength.

C.—IRRITATION AND HYPERTROPHY OF THE CLITORIS.

Enlargement of the clitoris, sometimes accompanied by a degree of induration approaching that of cartilage, at others by a relaxed flabby state of its tissues, and always attended by a high abnormal irritability, is a condition of more frequent occurrence, I believe, than most medical men suspect, and is for the most part brought on by self-abuse. The deplorable effects of this baneful habit both on the physical and mental health, have been less considered in the case of females than of men, and yet they are of equal gravity, and probably as prevalent. Its radical cure, moreover, is fortunately in our hands, for we can readily destroy the sensibility of the clitoris and its capability for irritation. Long-continued irritation of the clitoris figures among the causes of sterility; for besides its constitutional effects, it acts locally on the functions of the womb much in the same way, we may presume, as does excessive venery.

The necessity for the excision or amputation of the clitoris, when much enlarged, has been recognised by surgeons generally; but I would go further and say, that this operation should be resorted to in all cases where that organ is found in an abnormal state, and where constitutional symptoms are traceable

to its irritation. In most instances it is only necessary to cut off the glans, but in others I make incision through the crura posteriorly to the glans; and when the tissues are of a cartilaginous consistence, from the long duration of disease, I cut a small piece out.

Experience has taught me that, by one or other of these plans, the irritation of the clitoris and its horrible results may frequently be cured.

D.—VASCULAR TUMOUR IN THE MEATUS URINARIUS.

Few diseases of trifling magnitude occasion more distress than a vascular excrescence, varying in size from a large pin's head to that of a horse-bean, which is sometimes found growing from the female urethra. The exquisite sensibility shows it to be as well supplied with nerves as with bloodvessels. The tumour sometimes arises from the projection which generally exists around the orifice of the meatus, but it frequently grows from the internal surface. The tenderness of the parts is so great as not to allow of sexual intercourse, and it may thus become indirectly a cause of sterility. There is sometimes a mucous discharge; and Mr. Coulson observed, in a paper read before the Medical Society of London, that inflammation may extend from the meatus to the bladder, occasioning cystorrhœa.

The disease is common to both single and married women. Sir C. M. Clark and Dr. Blundell describe it as confined to females under the middle age, and generally to young women. But I have myself seen it in a woman of sixty; and Morgagni, who was the first to describe the disease, says, "Examining the body of an old woman, about the year 1751, I met with a small triangular excrescence within the external orifice of the urethra, but it was not prominent."

Diagnosis.—An exquisite degree of sensibility of the part being the leading symptom of the disease, the patient complains of excessive pain in micturition, in coitu, and, indeed, from the slightest pressure upon it. It may reasonably be suspected that such a tumour exists, when the acuteness of sensation is confined to the meatus, and does not extend to the vagina or

the vulva. Still, as the symptoms much resemble those of circumscribed inflammation of the vulva, it is evident that correct information can only be obtained by careful examination. Upon separating the labia and nymphæ, the nature of the complaint will generally become obvious. A small tumour, of a florid scarlet colour, resembling arterial blood, is observed on or just within the orifice of the meatus. It easily bleeds on rough handling. It is exquisitely tender, and its surface is somewhat granulated. It appears to grow, by a loose attachment, from the surface of the urethra. Upon turning it a little on one side, its insertion, sometimes into the tubercle above the meatus, sometimes into the lip of the meatus, can generally be observed. Occasionally there are more than one of these excrescences, and they may extend along the urethra towards the bladder. They sometimes produce great constitutional disturbance, dyspepsia, and nervousness.

Treatment. — Ligatures, though recommended on high authority, are useless, as they cannot be made to include the whole of the diseased mass, nor can they be made to tie it with any degree of force without exciting inflammation, as, in order to a cure, some portion of the mucous membrane should be included. Excision alone is speedily followed by a renewed growth, unless it be followed by caustic applications. A better practice is to excise the tumour with a pair of scissors, or a small well-pointed knife, taking care to remove not only the excrescence itself but also that small portion of mucous membrane from which it grows, a fine pair of forceps being used to take hold of it. To the wound thus made, nitric acid should be applied on a piece of stick pointed like a pencil, the parts around being filled with lint previously soaked in a strong solution of nitrate of potash, or carbonate of soda. Or, nitrate of mercury may be applied in the room of nitric acid, and a piece of lint dipped in cold water applied over the part immediately afterwards. In this way I have cured many cases, and one recently in which a plurality of excrescences required three or four excisions of small portions of the mucous membrane at different times; a preferable plan to excising the whole at once.

My friend, Mr. Brigham, of Lymm, informs me that during the twenty years he held the appointment of surgeon to the Lock Hospital at Manchester, he had frequent opportunities of seeing these peculiar tumours, and he found, after trying many modes of treatment, that the most certain and quickest plan was just to touch their extremity with the actual cautery, and that it seldom required more than one application. I have never tried this method, being content with the success which has always attended the one previously recommended.

I have contented myself with the record of four cases, considering this number ample by way of illustration, although I might have added many others.

Case I.—M. A. C., æt. 45, married; had fifteen children. Admitted into the "London Surgical Home" October 19th, 1858. About nineteen years ago, after one of her confinements, first found heat and difficulty in passing her water, and about a month ago was unable to pass it at all for a long time. The dysury and pain have continued ever since. On examination, I found a large vascular tumour situated on the right nympha, close to the meatus urinarius. October 22nd. I removed the tumour, and applied nitric acid to the wound.
Nov. 7th. Left quite cured.

Case II.—Mrs. S., admitted into the "London Surgical Home" January 5th, 1860. About two years ago she first experienced a sensation, when lying down, which she described, "as if something had jumped out of its place on the left side of her body, but when she stood up it disappeared." It did not cause her any inconvenience till about a year ago, since which time the tumour has increased very much in size, especially in the last three months. It has lately prevented her lying long on one side, or in fact in any one position, as she says it causes a feeling of great tightness. On examination, I found a vascular tumour about the size of a big pea, close to the meatus urinarius. Jan. 19th. I removed the tumour, and applied nitric acid. Feb. 2nd. She left quite cured.

Case III.—Charlotte L., æt. 28, admitted into the "London Surgical Home" Jan. 18th, 1860. She has enjoyed good health until five years ago, when she began to experience pain of a violent character on passing water, and soon discovered a red-looking tumour on her urethra. There has never been any hæmorrhage from it. She has been operated on twice by surgeons for its removal, but it has aways returned. On examination, a large red vascular tumour was visible on the meatus urinarius. Jan. 19th. The patient being under chloroform, I completely removed the tumour by excision, and then cauterized the wound with nitric acid, first applying lint saturated with carbonate of soda to the vagina around. Jan. 30th. I again applied nitric acid. Feb. 8th. She left the "Home," the tumour having quite disappeared.

Case IV.—C. C., æt. 54, admitted into the "London Surgical Home"

March 12th, 1860. For the last twenty-seven years has suffered from smarting and tingling about the vulva, pain in making water, great inconvenience when walking, and a sensation of fulness about the part after she had been a short time in the upright position. On examination, there was found a large vascular tumour at the meatus urinarius. March 15th. I removed the tumour, and applied nitric acid to the wound. The parts gradually healed; and on April 2nd, she left the Home cured. She could walk some distance without the slightest inconvenience.

CHAPTER XI.

DISEASES OF THE RECTUM RESULTING FROM CERTAIN CONDITIONS OF THE UTERUS.

THE substance of this chapter is in the main a transcript of the paper which I had the honour of reading before the Medical Society of London in 1854.

It is a fact, generally admitted, that diseases of the rectum are more common in women than in men. Of this a partial explanation may be found in the more sedentary habits of the former, but, in my opinion, it should much more frequently be referred to a uterine origin. The sundry altered conditions to which the uterus is subject—such as enlargement, displacement, deranged circulation—act mechanically and otherwise upon the rectum, and produce in it various lesions.

These, so to speak, secondary disorders of uterine origin, seem to me not to have been sufficiently recognised and insisted on; and hence, I believe, have resulted the too frequent failures in the treatment of diseases of the rectum in females, which most practitioners have to lament. The influence of the enlarged uterus in pregnancy in developing disorders of the rectum, has, indeed, attracted general attention; but that of other enlargements and of displacements has never, so far as I am aware, been put prominently forward. Yet, if the uterine origin of the disease be not suspected, we may treat a woman affected secondarily with constipation, piles, intestinal irritation of a dysenteric character, or other allied disorders, by measures directed to the *bowel* as the primary seat of the disease, and she will derive no benefit from any of them; for the uterine and intestinal affections are related to each other as cause and effect: and it can be only on a recognition of this relation that we can apply remedies with any certainty, or look with any confidence for a favourable issue.

Plate

Normal condition of the Pelvic Viscera

a Symphysis Pubis b The Bladder c Uterus d Rectum e Vagina

Plate VII.

Showing Partial Retroversion of Uterus pressing upon upper part of Rectum.

Displacement forwards or backwards, and enlargement of the uterus, from whatever cause—whether pregnancy, hypertrophy, inflammatory engorgement, distension by fluid or by hydatids, fibrous tumours, or scirrhus, or any other disease—alike tend injuriously to affect the rectum.

As displacement may occur without enlargement of the uterus, it may operate singly in inducing rectal disease; but more often the two conditions concur, and it is then chiefly that the mischief is so considerable. The evils, too, will be greater when, with retroversion, engorgement of the body of the uterus, and with anteversion, congestion of its neck, go together. On the other hand, enlargement, without deviation of the womb forwards or backwards, acts singly in provoking disease of the rectum, oftener than either of these displacements does when found alone.

The conditions of the uterus under consideration act on the rectum injuriously in two ways: first, by mechanical pressure; and, secondly, by inducing similar vascular disturbance in its tissues. An enlarged uterus drags on its lateral ligaments, elongates them, subsides lower down in the pelvis, and so comes to press on the lower bowel, to interfere with its muscular action and the circulation through its bloodvessels, and to irritate its mucous lining. At the same time any hyperæmic state of the uterine vessels causes an increased fulness of the hæmorrhoidal, and a determination of blood to them. Thus, by reflecting on the anatomy of the parts, it will easily be understood why and how diseases of the rectum, such as hæmorrhoids, prolapsus, fissure, stricture, fistula, as well as disordered functions of the bowel, such as constipation, dysenteric irritation, &c., do sometimes result directly, either from the mechanical pressure of an enlarged uterus, or simply from the derangement of the hæmorrhoidal circulation, dependent upon uterine disease.

By retroflexion and retroversion, the fundus uteri is thrown backwards against the rectum, and will consequently exercise an amount of compression on that viscus, according to its degree, to the bulk of the uterus and the capacity of the pelvis. Retroversion is occasionally so complete that the fundus uteri

occupies the posterior peritoneal cul-de-sac, and even descends below the level of the cervix. Now, as deviation of the uterus posteriorly is no unfrequent consequence of distended bladder —a common occurrence in females owing to their natural reserve, and the restraint imposed by our social habits—and as its ulterior effects on the rectum must be expected, one reason for the greater prevalence of diseases of the rectum among them is made apparent.

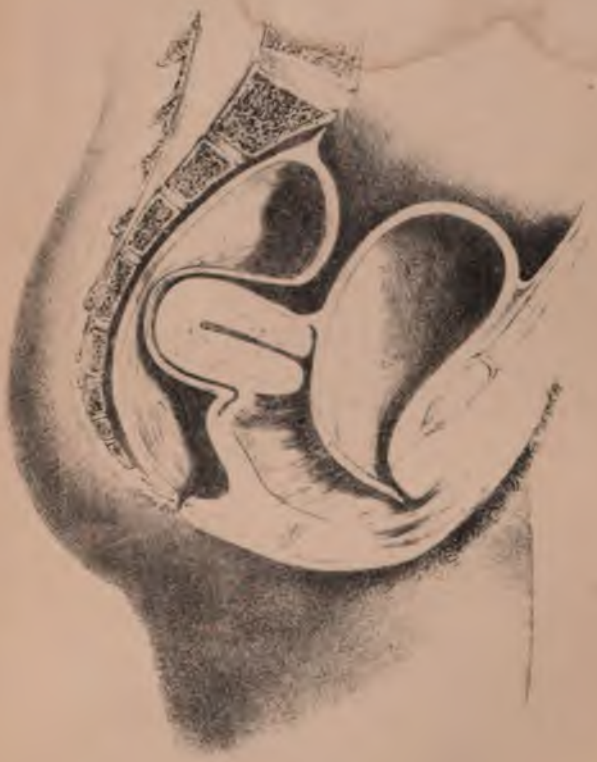
In anteversion and anteflexion, the fundus falls forwards against the bladder, and thus the cervix uteri will impinge against the rectum, more or less, according to the extent of the deviation, the size of the womb, especially of its neck, the capacity of the pelvis, and the degree of fulness of the bladder, which in these displacements has its outlet more or less obstructed.

A reference to the plates will best explain the mechanical interference exerted by these several mal-positions of the uterus, and likewise the normal relations of the pelvic viscera. It is obvious, that in the treatment of the various affections so arising, unless the attention of the practitioner is directed to their uterine origin, no permanent benefit can possibly result. Therefore, when any of these affections occur in females, it is necessary to inquire into the condition of the uterus, which will often at once explain the cause and indicate the treatment. I now propose to demonstrate these views by cases.

Hæmorrhoids.—The hæmorrhoidal veins suffer more from pressure than the arteries, because the coats of a vein are thin and capable of great distension, and not resilient, whereas the artery is smaller, firm, elastic, and very resilient, and the *vis à tergo* being greater, the circulation of the blood is less liable to interruption. Therefore, as might be expected, the evils of pressure are greater in the veins than in the arteries. Hence we find that the blood stagnates, and occasionally coagulates in the veins, and forms a semisolid tumour, whilst the cellular tissue around becomes thickened, and the mucous membrane covering them excessively vascular and sensitive. I allude here entirely to internal hæmorrhoids of a varicose nature.

Case I.—L. C., æt. 31, unmarried; had suffered for several years from

Plate VIII.



Showing the result of a more complete Retroversion

three or four large piles, which, she stated, protruded in the act of walking, and also created great uneasiness in the sitting posture. Every three or four weeks, she lost a considerable quantity of blood from them. Her bowels were seldom opened more than once in three or four days, and then only from taking some aperient. After each act of defæcation, she had always increased inconvenience and pain. She suffered much from indigestion, headache, and general lassitude. I first inquired as to the menstrual function, and found that, although she was generally regular every four weeks, the quantity was very small, and the discharge seldom continued more than one day, and that at this time, she generally lost a considerable quantity of blood from the hæmorrhoids. On making a digital examination per vaginam, I found the uterus enlarged and painful to touch, and lower in the vagina than normal. I directed that three leeches should be applied to the os uteri, and that the bleeding should be encouraged by a hip-bath immediately on their removal; that the bowels should be freely opened by a saline aperient; and that this treatment should be pursued once a week. She was further directed to take twice a day the sixteenth part of a grain of the bichloride of mercury, and her diet was ordered to be simple, nutritious, and unstimulating. The result of these measures was that at the next menstrual epoch there was a more copious uterine discharge, and an absence of bleeding from the hæmorrhoidal vessels. The same treatment was continued for another month, and resulted in an improvement in menstruation, both in quantity, and in the duration of its flow; the uterus had much decreased, being nearly of its normal size, and not painful to touch. I now considered it advisable to remove the hæmorrhoids, which I did by passing a ligature of twine around the base of each. I then placed the patient in bed, giving her a grain of opium every four or six hours, for the purpose not only of affording relief from pain, but also of constipating the bowels till the ligatures should come away, which they did in five or six days. The case progressed satisfactorily, and the patient returned to the country perfectly recovered.

This case presents some striking practical facts, which will serve to illustrate my preliminary remarks.

1. The bleeding from the hæmorrhoids at the menstrual epoch. It is a fact that hæmorrhoids are always more troublesome at the time of menstruation, because more blood is circulating through the blood-vessels of the rectum as well as of the uterus; and if there be any obstruction in the uterine vessels to prevent the menstrual flux, then the hæmorrhoids often bleed freely. 2. The enlarged and inflamed uterus, with the decrease of the menstrual flux. 3. The great relief afforded by the antiphlogistic treatment, 4. In ligaturing the hæmorrhoids I prefer *twine*. Its advantages over silk are very marked:—first, in procuring a quicker separation of the tumour; and, secondly, in causing less pain to the patient. It will also be observed, that I preferred the ligature to the scissors in the removal of these tumours, acting upon the golden rule laid down by my old and esteemed friend, Mr. Copeland, in all operations upon the rectum, "*to cut skin, and tie mucous membrane.*" I am also indebted to the same gentleman for the practical hint to prefer the use of the vegetable product—twine, to that of the animal product—silk.

I think it is not too much to assert, that had I at first devoted my attention to the hæmorrhoids in this case, I should not have succeeded in restoring my patient to health.

Case II.—*Prolapsus Ani.*—H. A., æt. 28, unmarried, upper nurse in a lady's family; had suffered for twelve months with a prolapse of the bowel. She stated, that this prolapsus was always much increased by carrying the infant, or by raising any weight; and also worse after defæcation; that every three or four weeks she had bleeding from the protruding parts; that she had been regular as to time in menstruation, but very deficient as to quantity, and that the discharge was of a dirty-brown colour. She had been under a course of medicine for nine months, but had derived no benefit.

On passing my finger up the rectum, while she was standing on the floor and leaning forward on the side of the bed, I felt a round tumour the size of an orange pressing on the rectum just below the promontory of the sacrum, moveable on pressure towards the vagina. This, on examination per vaginam, I found to be an enlarged uterus retroverted, and thus mechanically acting upon the rectum. This prevented free circulation of blood through the bowel, and thus not only produced piles, but also congestion of the mucous membrane and prolapsus.

Treatment.—I first directed my attention to the condition of the uterus; applied leeches; enjoined rest in the recumbent posture; gave saline aperients; ordered simple and unstimulating regimen, and the bichloride of mercury, with tincture of bark twice a-day. The result of this treatment, at the next menstrual epoch, was a considerable improvement in the character of the discharge; the same treatment was continued another month with increased benefit.

On Dec. 16, I prepared her for the necessary operation, by giving her a dose of castor oil at night, and an enema of warm water on the following morning. Having placed her under chloroform, my assistant separating the nates, I passed an armed needle, with a double ligature of well-waxed twine, through the prolapsus, and tied it in two separate portions; and then, having well smeared the surfaces with oil, I returned them within the sphincter, which firmly contracted, leaving the two ends of the ligatures without. Gave two grains of opium, and ordered one grain every four hours.

17th. Had some sickness during the night, and vomited, after which she slept well. There is no pain about the anus. To continue opium every six hours.

18th. Has had a good night. Some pain in the rectum for a short time, leaving no permanent discomfort. Diet: broth, light pudding, and milk.

20th. The ligatures came away, and the bowels were relieved by castor oil. 22nd. Complained of a sharp cutting pain after the last dejection.

23rd. Examined, and found an ulceration or fissure within the sphincter, and an inflamed external pile.

26th. I placed her under chloroform, and first cut off the external pile, and then divided the fissure in the manner directed by Mr. Copeland, and which I shall more fully describe in Case IV. I then examined more carefully, and found, exactly opposite the fissure, a small wart-like substance, with a long slender pedicle. This fell within the fissure—which, it may be, it had produced—and kept up a constant state of irritation. Having removed this by the scissors, I applied a piece of lint dipped in oil to the incised surfaces, and gave grs. ij. of opium.

27th. Is free from pain; pulse quiet, and no fever. Removed the lint, and did not again apply it. From this time she progressed favourably, and in one fortnight was quite well. During the next two years she had no return of the disease, but continued in the same situation, performing well all its duties.

Practical Remarks.—This case again surely proves the truth of my preliminary remarks, as showing the predisposing cause of the prolapsus—viz., the condition of the uterus, its mechanical pressure on the rectum, and the increased flow of blood to the bowel at the menstrual epoch on account of the deficient discharge from the uterus.

Case III.—*Prolapsus Ani.*—E. H., æt. 42, married; had been married eleven years, and had no children; had long suffered from bearing down of the womb, and at each menstrual epoch there was very deficient excretion. Her health was generally impaired: she had long been treated for uterine derangement, but had never allowed an examination. On consulting me, I immediately inquired if she suffered from piles, or bearing down of the bowel; and, on her replying that she had suffered from prolapsus of the bowel for several years, preventing her from riding on horseback, or sitting long in one position, I inquired further, whether, at the menstrual epoch, there was any bleeding from the protruding bowel. She replied that she lost a great deal of blood at those periods, and that the parts were more painful and sensitive then than at other times. This patient never had an evacuation from the bowel, except from medicine, which she took every night. I directed her to remain in the horizontal posture, either on her side or on her abdomen; attended to her general health, administering steel and quinine, and using the cold douche to the uterus. Under this treatment she rapidly improved; and on finding that after two months there was a freer menstrual discharge, I applied ligatures to the prolapsus of the bowel. The disease was permanently cured; the patient was restored to good health, and in the course of a few months became pregnant for the first time in her life; and I delivered her of a healthy child at the full period of gestation.

Practical Remarks.—This case points out the importance of investigating both the uterus and rectum in such conditions of the female; for it will be observed, that instead of the rectum alone being investigated, as was done in the two preceding cases recorded, in this the uterus alone had been treated, and the result was equally unsatisfactory. I could adduce very many cases which have come under my observation of a similar kind, where patients have been treated for months and years for uterine disease, but no attention having been paid to the condition of the bowel, no good has accrued. I shall in a subsequent chapter endeavour to show that the cause of sterility in many females will be found to arise from these conditions of the rectum, in connexion with those of the uterus. I need not, therefore, enlarge upon the importance of thoroughly investigating all such cases.

Case IV.—*Fissure of the Rectum.*—E. P., æt. 29, unmarried, of pale complexion, and of anxious countenance, consulted me, complaining of headache, great depression of spirits, lassitude, and want of appetite. She had not menstruated for three months, and complained of a heavy bearing-down pain in the womb, particularly on standing, or when lying on her back. She suffered from constipation, never having relief from the bowels except after taking medicine. She always dreaded the act of defæcation, because she suffered such excruciating pain a few minutes afterwards. She described the pain at the time of defæcation as like sand passing over a raw surface, and the pain which supervened upon the action of the bowel was of a deep, cutting nature, almost intolerable.

On passing my finger within the rectum, I immediately discovered an irritable ulcer, in the centre of which was a narrow elongated fissure, terminating just within the orifice of the anus. On withdrawing my finger, I found on it a streak of blood corresponding with the length of the fissure. On the opposite side of the bowel was a pendulous tumour about the size of a small pea, with a long thin pedicle. On examination per vaginam, I found a fibrous tumour growing from the superior lip of the os uteri, extending up the cervix about an inch, whilst the os and cervix uteri, enlarged by this body, were tilted back upon the rectum, and thereby interfered with its functions. I ordered leeches to be applied twice a week to the os uteri, prescribed tinct. ferri sesqui-chloridi, and warm hip-baths. The catamenia returned at the end of a fortnight, and continued for some days, although scantily. I then removed the tumour from the os by excision, and as soon as she had recovered from the effects of the operation, which she did in a month, proceeded to the treatment of the fissure in the following manner. Placing the patient on her side on the edge of the bed, with her knees flexed on the abdomen, I passed the forefinger of my left hand up to the ulcer, and directed along it, with my right hand, a straight probe-pointed bistoury, beyond the very extremity of the fissure; then turning the cutting edge towards the sore, and securing the handle of the instrument with the thumb of my left hand, I withdrew my finger and the instrument at the same time, thus dividing the ulcerated surface as well as the fibres of the sphincter muscle. The result was, as will generally be the case, perfectly satisfactory, the patient being at the end of three months from the commencement of the treatment restored to health.

Practical Remarks.—I am indebted to my friend Mr. Copeland for both the knowledge of this disease and the simple method of treatment, which is almost invariably successful; at least, out of upwards of 200 cases which I have myself treated in twenty years, I have not seen it fail once. Another practical fact is connected with the pathology of these diseases. My own impression is, that the pedunculated tumour above described falling down upon a highly vascular mucous surface, produces, in the first instance, irritation, secondly, ulceration, and thirdly, fissure of the lining membrane of the bowel, each contraction of the sphincter after defæcation increasing or aggravating the ulceration. My reasons for believing this are, that I seldom find this condition of the rectum without finding one or more of these peculiar bodies, which I need not say should always be removed at the time of operation. It is very easy to detect this disease by digital examination. If the surgeon is consulted at the commencement of the disease, he will simply find an irritable, ulcerated surface; but if consulted at a later stage, he will find the fissure, which resembles very much the crack often found in the lip of the mouth, or in the palm of the hand in cases of psoriasis; still, in whichever of these two conditions he finds the patient, the treatment pursued should be the same. I will also add, that it is always advisable to give opium just after the operation, so as to prevent the bowels from acting for some days.

Case V. *Constipation.*—Mrs. T——, æt. 38, mother of six children; complained of persistent constipation, except when she was taking steel medicines; that she suffered pain after each action of the bowels; that much mucus came away with and after the dejections; that she had pain in the back, great bearing down both of the bowel and womb, with profuse leucorrhœal discharge, and that she had lost much flesh. I found her face anxious, and of a dark dusky hue. She suffered also from dys-

pepsia, headache, and general lassitude. I requested permission to examine the uterus, believing the cause of constipation arose therefrom; but for a long time this lady resisted the proposal; however, I was at last permitted to make an examination, and found, as I expected, an enlarged and prolapsed uterus, within two inches of the outlet of the vagina. On using the speculum the os was seen to be inflamed, enlarged, and ulcerated. On examination per rectum, I found, three inches up, a solid, heavy body (which was evidently the fundus of the uterus) pressing on the bowel, so as to prevent any feculent matter passing in a solid state; the lining membrane was covered with much slimy mucus. She stated that she was always suffering pain in the bowel, as well as in the womb; that the pain in the rectum was of an *aching, wearying* character, making her feel faint and sick; that the sensation of the womb was like a heavy weight, feeling as if it would escape when walking. I applied caustic to the os, ordered the cold douche night and morning, with directions to recline on the stomach for several hours; to wear constantly during the day one of my perinæal bandages, to take internally steel, and zinc combined with extract of conium at bed-time; and to have the bowels relieved by an enema of warm water every other night. Whenever she was lying on her stomach, she was quite free from pain; after two months' treatment, this patient perfectly recovered; and by the simple precaution of relieving the bowels by an injection just before going to bed, she has continued well up to the present time.

Practical Remarks.—I think that any treatment, applied simply to the bowel, for relief of the constipation, would in this case have failed, unless the exciting cause had been discovered in the morbid condition of the uterus. It is well worth notice that she was perfectly free from pain both in the bowel and the womb when reclining on the stomach. Another practical fact, deserving observation in constipation as well as in all the other affections of the rectum, is, that by relieving the bowel at night, immediately before retiring to rest, the greatest relief is afforded; and it is the best way to prevent a return of disease, because the natural determination of blood to the bowel, at the time of defæcation, as well as the congestion of the mucous membrane, and the relaxation of the muscles, are all relieved by the recumbent posture followed by sleep.

Case VI.—*Fistula in Ano.*—E. C., lady's maid, æt. 32, married, consulted me, complaining of feeling generally ill, of pain on her right side in the hepatic region, of indigestion, headache, and general lassitude. She had an anxious countenance, a dusky-brown complexion, depression of spirits, a tendency to melancholy, and felt scarcely able to perform the duties of her situation. The following is an account of her past history:—She had been married nine years; she suffered greatly from the first commencement of sexual intercourse, having had from that period pain in the womb of a dull aching kind, which increased more or less for twelve months. At the end of this time, she experienced a heavy bearing-down pain, which particularly affected the rectum. She had lived apart from her husband six or twelve months at a time, because of suffering so much pain, not only at the time of connexion, but for some weeks afterwards. Before marriage, she had been healthy, active, and in robust health; but this gradually failed since marriage. In the third year of her wedded life she began to experience difficulty in defæcation, as if something prevented, the bowel acting; and was obliged to take some aperient medicine two or three times a-week to insure relief. This difficulty was soon followed by

an aching, wearying pain in the bowel itself when she was walking or sitting; then she became subject to troublesome internal hæmorrhoids, which were always more painful, and occasionally bled a little at the menstrual epoch; menstruation itself being regular as to time, but scanty in quantity. After some time, she suffered from a throbbing, deep-seated pain in the bowel, which terminated in a fistulous opening; and then, for the first time, applied to a surgeon, who operated for the fistula. During the next three or four years she underwent two or three more operations on the bowel, the precise nature of which she could not explain; but although relieved at the time by each operation, still the relief was not permanent, constipation and difficulty of defæcation continuing.

Examination.—On examining the anus, I discovered a fistulous opening extending an inch up the bowel; and on passing my finger up the rectum itself, found the uterus pressing heavily upon it. On examination *per vaginam*, I felt an enlarged hypertrophied uterus, tilted back so as to press the rectum flat upon the sacrum.

Treatment.—I treated the uterine affection on the principles already described, with the same marked result. I then performed the usual operation for fistula, and, after the parts were healed, directed her to evacuate the bowels at night instead of the morning. The result of the whole treatment was most satisfactory; the patient recovered her former good health and spirits; and, when she lately called upon me, I did not recognise her, she had become so stout, and looked so cheerful and happy.

Practical Remarks.—Perhaps no case could more clearly illustrate my preliminary remarks than this. Here was disease of the rectum of several years' standing, distressing the patient, and rendering life hardly endurable, considering the duties she had to perform; and, although the collateral disorders appearing from time to time were carefully treated, and relieved—some of them indeed by operations—still, the exciting cause not having been discovered, no permanent benefit accrued; whereas, no sooner had the uterus been relieved, than she was perfectly cured by the last operation as described, and has continued well ever since.

I could easily multiply these illustrations by quoting cases from my note-book, and show that stricture, irritation of a dysenteric character, &c., constantly arise, either from mechanical pressure of the uterus, or from suppression, partial or entire, of the menstrual discharge; but as the limits of this chapter will not admit of such extension, I shall rest the proof of my preliminary propositions on the cases now recorded.

DISEASES OF THE RECTUM RESULTING FROM OTHER CONDITIONS OF THE UTERUS AND ITS APPENDAGES.

In the preceding observations I have chiefly directed attention to the maladies of the rectum dependent on a tilting or bending of the uterus forwards or backwards, or on the subsidence of that viscus from enlargement. But it will be at once perceived that other conditions of the uterus than those named,

may cause it to mechanically interfere with the functions of the lower bowel. Among such may especially be noticed fibrous tumours or polypi developed within the uterus, which will not only drag it from its normal position, and cause its enlargement, but also themselves act as mechanical causes of disease to the neighbouring viscera. What fibrous tumours developed within may do, those from the exterior of the uterus may do likewise, or even more completely; and equally injurious with the foregoing are the true pelvic tumours, particularly those originating in the recto-vaginal cul-de-sac.

Another cause of suffering in the rectum depends on the presence of ovarian tumours, chiefly when in their early stage, and still contained within the pelvis. This effect of cysts of the ovary is particularly noticed in the chapter on ovarian dropsy.

Uterine and pelvic tumours give rise, just as does the pressure of a displaced uterus, to false stricture of the rectum, sometimes to fissure and fistula, and oftener to piles. It is needless, however, to enter into descriptions of how each morbid condition exerts its injurious effects; it will be sufficient for my purpose to have called attention to the frequent mutual dependence of uterine and rectal disease; and to have shown the necessity of bearing this in mind, when we are called upon to treat females for any disease of the lower bowel, especially when the lesion proves intractable. When this relation is once discovered, the course of treatment will be obvious; whilst every means aimed at any local symptom will be entirely vain, so long as the *fons et origo mali* remain untouched.

As the rectum behind, so the bladder in front is obnoxious to injury from its relations with the uterus. The disordered micturition in pregnancy is well known; that in ovarian dropsy is hereafter pointed out; whilst that met with in displacements of the uterus, and in the case of tumours attached to that organ and its appendages has been generally treated of in the chapters on prolapse of the vagina and uterus, and on fibrous tumours of the womb.

CHAPTER XII.

CERTAIN DISEASES OF THE RECTUM PRODUCING OR SIMULATING UTERINE DISORDER.

In the preceding chapter I have pointed out the frequent dependence of diseases of the rectum upon those of the uterus. I will now reverse the proposition, and show that various derangements of the uterus are produced or simulated as a consequence of lesions of the rectum. By the course thus taken the vital relations or sympathies between the uterus and rectum,—always admitted, indeed, as a general fact,—will assume their proper place as matters of practical significance; and the more so, I hope, inasmuch as I shall not attempt a general dissertation upon them, but, on the contrary, illustrate them by cases drawn from my own experience. The contiguity of the uterus and rectum, and the intimate connexion between their vascular and nervous supply, whilst affording a sufficient explanation of their close mutual sympathy, also suggest, what clinical observation still more powerfully does, the necessity of examining the state both of the rectum and uterus, particularly when, in disorders of the latter, no adequate cause can be discovered in the viscus itself to explain their presence.

Without further preamble, I will proceed to detail a few cases selected from my note-books, to demonstrate that treatment addressed to the uterus for apparent disorder is often nugatory, and even mischievous, owing to the actual cause of the patient's sufferings existing in some lesion of the rectum, the cure of which can alone afford permanent relief. The most frequent diseases of the rectum thus sympathetically affecting the uterus are fissure, polypus, and hæmorrhoids; but other morbid states are not without a similar influence.

Case I.—*Fissure of the rectum, producing uterine symptoms and constitutional disorder.*—L. P., æt. 25, single, admitted into the "London

Surgical Home" Dec. 22nd, 1858. She complained that she had suffered for a long time from heat and pain in the womb, with pains in the back, and a general feeling of uneasiness in her bowels. She looked ill and worn, and was suffering much from dyspepsia. Leeches had been applied to the uterus, and she had been treated for dyspepsia, and for the uneasiness in her bowels, but without deriving the least benefit. On examining the uterus, no disease could be found; menstruation was regular; there was slight leucorrhœa. On inquiry, if she had more pain at the time of, or after, an action of the bowels, she replied, "Yes, always: that then she had a sharp shooting pain darting through the womb, and that she was obliged to lie down, because the pain and uneasiness were so great in her bowels; in fact, that she dreaded going to the water-closet." On passing my finger into the rectum she complained of acute pain, and I found a deep fissure just within the sphincter, and opposite to it a small pendulous polypoid body, the pea-like end of which dropped into the fissure.

A dose of castor oil was ordered early in the morning on the following day, and after it had acted freely the rectum was well washed out with warm-water enemas; the fissure was then divided by Copeland's blunt-pointed straight bistoury, the polypus tied, and the rectum plugged with lint soaked in sweet oil. Two grains of opium were given, and generous diet ordered.

Dec. 25th. The bowels were opened by a castor-oil enema; afterwards the nurse applied sweet oil on her finger to the whole cut surface, and repeated it once daily.

June 6th, 1859. Discharged quite cured. I have heard of her since as continuing perfectly well.

Practical Remarks.—This case well illustrates the proposition which I have just advanced. I would also wish to observe that a very large number of fissures of the rectum are produced by these little polypoid bodies, as they will be found in almost every case if carefully sought for. It will be observed that the dressing of lint and oil was never repeated. This has been my invariable practice for the last twenty-five years, having been taught the great practical fact by my esteemed friend, the late Mr. Copeland, that it is never necessary to interfere with the parts by the painful process of reintroducing the lint, since if care be taken that the first dressing be left in for forty-eight hours, there is, after that time, no fear of union by first intention, but that, on the contrary, a healthy granulating process is set up, which continues to the end.

Case II.—*Hæmorrhoids, with fissure of the rectum: Uterine derangement.*—Emma C., æt. 42, married, mother of eight children; admitted into the "London Surgical Home" on the 11th of June, 1859. She complained of having suffered for a long time from pain and bearing-down of the womb, and also from piles since her first pregnancy, twenty-two years ago. Finding that there was no disease of the womb to account for her suffering, I inquired if she suffered much pain on defæcation, and she replied, "Yes; that when her bowels acted she had great pain; and that as they were generally in a torpid state, she was constantly obliged to take aperients." On examination of the rectum, some old external piles were found covered by skin, and within the sphincter some internal piles; at the root of one of them a deep fissure was felt, and opposite to it a large polypoid body.

June 16th. External piles cut off, internal piles tied, fissure divided, and

polypoid body twisted off at its root. The after-treatment the same as in the previous case.

July 16th. Discharged cured.

CASE III.—*Fissure of the rectum with uterine derangement: Cure.*—E. F., æt. 30, married, mother of two children; admitted into the "London Surgical Home" on the 8th of December, 1859. She has been suffering for the last four years from pain in the womb, sensations of bearing-down, pain in the back, general lassitude, and inability to perform her domestic duties. She had been in a London hospital for a month, and was dismissed because she was supposed to have no disease—in fact, shamming illness. On examination, the uterus was found healthy; but the rectum proved to be in the same condition as in Case I.

Assisted by my colleague, Dr. Hall Davis, I divided the fissure, and followed the usual after-treatment. In a fortnight she was out walking, in a month she left the "Home," and I have since heard of her as being in perfect health, and performing actively her domestic duties.

CASE IV.—*Fissure of the rectum: Hæmorrhoids: Severe uterine symptoms treated ineffectually: Operation on rectum: Cure.*—M. R., æt. 35, married, was admitted into the "London Surgical Home" on March 14th, 1860. For several years she had suffered intense pain about the uterus and rectum; and for the last three years has had caustic applied to the uterus twice a week, but without the slightest alleviation of her sufferings. She had been in the habit of taking three or four grains of opium in the course of a day, and her general health seemed completely broken down. On examination, an old fissure of the rectum was easily found, situated behind two large piles.

March 22nd, 1860. The fissure divided, and the piles removed.

24th. The bowels relieved with less pain than she had had for many years past.

April 4th. Discharged, quite cured.

Remarks.—It will be observed that, when the bowels were relieved, only two days after the operation, she had a marked cessation of pain. This is invariably the case, and is a most cheering fact to both the surgeon and the patient.

CASE V.—*Fissure of the rectum: Hæmorrhoids: Treated for uterine disease in vain: Operation on rectum: Cure.*—H. A., æt. 43, single, a lady from the country, had been suffering for some years from supposed uterine affection, and had had leeches and caustic applied to the uterus, but still derived no benefit. On examining *per vaginam*, I could find no disease or anything that required treatment. Menstruation was regular. On inquiring if she felt any pain on defæcation, she replied, "Yes, frequently; sometimes acutely." On passing my finger within the sphincter, I found a painful fissure, opposite to it a small polypoid body, and two internal hæmorrhoids. I advised that she should stay in town; and, after two or three aperient doses, that she should undergo the usual operation. This was done, and in ten days she was up, feeling quite well, and in a fortnight left town without an ache or pain in uterus or rectum. Two years have elapsed since, and she has continued perfectly well. She has frequently expressed her surprise that she had never been so thoroughly examined before when seeking medical advice.

CASE VI.—*Fissure of the rectum: Ineffectual treatment for uterine*

symptoms: Operation on rectum: Cure.—P. C., a lady from the country, married, without children, had been for many years suffering from what she considered uterine disease, accompanied by painful menstruation, which was supposed to arise from constriction of the os and cervix uteri. Leeches, sponge tents, and uterine dilators were from time to time persevered in. Still she kept getting thinner and weaker; and from having been accustomed to ride on horseback, and to take much out-of-door exercise, she was unable to do either, constantly reclining on her sofa, and being, in fact, a confirmed invalid. On inquiring if she suffered pain on defæcation, she replied, "Yes, so much so, that she always dreaded any action of the bowels, and was obliged to take strong aperients; that then the pain extended a long way up the bowels, and left a long, wearying, aching pain, which always made her feel sick and faint for some hours afterwards." On examination, I found the same condition of rectum as in the last case; but the fissure was deep, and evidently of long standing, and the sphincter itself was so firmly constricted as to admit with difficulty the point of my finger. I confidently promised a speedy cure if she submitted to the necessary operation. This she did on the 2nd of the month, and on the 4th, her bowels were relieved by a castor-oil enema, and an enormous quantity of fæculent matter removed. On the third day the bowels were also moved after a small dose of castor oil. The patient then, to her intense delight, found that she experienced none of her former suffering. Since then she has steadily and gradually progressed in health and strength. Her face, which had been thick and muddy, is now clear and bright, indicating all the signs of returning health.

Case VII.—*Fissure of the rectum: Supposed disease of the uterus: Cure.*—A. M. O., æt. 42, admitted into the "London Surgical Home" June 12th, 1860. Has been married twenty-six years, and has had eleven children and ten miscarriages. The last child was born two years ago: ever since she has been ill; has suffered much from heat, pain, and bearing down of womb. For the last six or seven months has been obliged to take large doses of medicine before her bowels would act; and when they did so, the motions gave great pain. She has been treated for inflammation of the womb, but has never had the rectum examined.

Examination.—The womb was found quite healthy; in the rectum were two fissures, into each of which dropped a small polypoid body.

June 21st. I removed the polypoid bodies, divided the fissures, and plugged the rectum with oiled lint.

23rd. Oiled lint removed, and simple oil applied by the finger to the cut surfaces.

24th. A dose of castor oil relieved the bowels, which acted with far more ease than for a long time previously. She was ordered to take a dose of castor oil every other morning, which was always followed by a comfortable evacuation without any pain.

July 11th. Parts nearly healed; caustic applied to a small piece of excessive granulation.

28th. Discharged perfectly cured.

Remarks.—This was another case where the disease was attributed to the uterus, but where, as the result proved, the real cause of her suffering arose from the rectum.

Case VIII.—*Polypus of the rectum: Supposed uterine disease and great*

constitutional derangement: Cure.—Mrs. R., æt. 59, mother of three children. Catamenia ceased three years ago, after an attack of variola; ever since that time she has been suffering from supposed uterine affection, and gone through the usual treatment for congestion and enlargement of the womb. Her bowels have been seldom relieved except by medicine; she has been subject to piles, which sometimes bled: has also had great irritability of stomach, requiring spoon-diet for some time. The uterus was found perfectly healthy, and in its normal position. On examining the anus, the sphincter was found to be so firmly constricted as to hardly admit the finger. Immediately within its orifice was found a bleeding pile. On passing the finger two inches up the rectum, a large polypus, the size of a French bean, was discovered, with a thin pedicle of about an inch long.

Jan. 26th, 1860. The pedicle was tied with twine, and the polypus cut off. The internal pile was tied, and the constricted sphincter freely divided on each side of the anus. Oiled lint was then introduced within the rectum, and an opiate given.

March 21st. Discharged perfectly cured.

Remarks.—This was a case of great interest in a practical point of view, the patient having laboured under a supposed affection of the uterus, and having become emaciated from the constant irritability of the stomach. The rectum had never been examined, and, consequently, the polypus, which was the real exciting cause of her illness, had never been discovered. The improvement in her general health, and the increase of flesh consequent thereon, were most marked before she left the 'Home.'

Case IX.—*Fissure of the rectum: Supposed disease of the uterus: Cure.*—M. A., æt. 32, married, admitted into the "London Surgical Home" August 6th, 1860.

About two years ago was very ill, the abdomen becoming enlarged; the catamenia irregular, profuse, and lasting for a long time.

She consulted two medical men at different times, who treated her for the flooding and flatulence, but never examined her either per vaginam or per rectum.

Her bowels have been much constipated, and she has suffered much pain on passing her motions. On her admission, she complained of a sensation of a swelling in the abdomen, which moved from side to side; great pain in the limbs, and "a tired feeling."

On examination, the uterus was found perfectly healthy. There was a fold of external piles round the rectum, and several internal piles; also a fissure of the rectum, with a polypoid body dropping into it.

Treatment.—August 9th. The patient being under chloroform, I cut off the external piles, tied the internal, cut off the polypoid body, and divided the fissure. The rectum was then plugged with oiled lint.

August 11th. Lint removed.

August 12th. Had ℥ss. of castor-oil, which opened her bowels without any pain.

She soon after this left the "Home" quite cured, and I have since heard of her as being quite well.

Case X.—*Fissure and polypus of the rectum: Cure.*—A. W., æt. 38, married, admitted into the "London Surgical Home" August 6th, 1860.

About nine months before, she was ill with intermittent fever, which left her very weak. When she got better she felt an irritating pain in her rectum, with difficulty and pain in passing her motions: she had also

great pain in her back and loins. Two months ago she attended as an out-patient at one of the Metropolitan Hospitals, and was there treated for hæmorrhoids, but without much relief.

On examination, a very bad fissure, with a polypoid body dropping into it, and two external piles, were discovered. She was put for a few days on tonic treatment, and on August 9th, I cut off the external piles and the polypoid body, and divided the fissure, the patient not being under chloroform. The rectum was then plugged with oiled lint. 11th. Oiled lint removed. 12th. Had a dose of castor oil, which opened her bowels freely and without any pain, which she had not been free from for eighteen months. 25th. Left quite cured.

Case XI.—*Fissure of the rectum: Supposed prolapsus uteri: Hypertrophy of clitoris: Cure.*—R. O., æt. 41, unmarried, admitted into the "London Surgical Home" October 17th, 1860. Twenty years ago, had a fall and injured her womb; an abscess formed, and discharged for some time. She has suffered from great pain in passing her motions and urine. Eighteen months ago, could not pass her water for six months, and used to have the catheter introduced. She has worn pessaries for five or six years to support the uterus, and been confined to bed for seventeen years.

On examination, the uterus was found perfectly healthy; but there was a fissure of the rectum, and the clitoris was hypertrophied and felt like a piece of cartilage.

Nov. 2nd. Divided the fissure, and also the clitoris midway between the glans and crura. This was so hard, that it was with difficulty divided; but when cut, it bled freely. The rectum was then plugged with oiled lint. 4th. Lint removed. 5th. Bowels opened by castor-oil, more comfortably than they have been for years. February, 1861. Continues well.

Remarks.—This case was one of great interest, as it was evident her sufferings (which she very much magnified) arose from two causes: first, the fissure of the rectum, which not only gave pain on defæcation, but also produced difficulty of micturition, a very common result of fissure or fistula of the rectum; secondly, from irritation of the clitoris, which was kept up by self-abuse until the organ had almost lost its normal character.

Case XII.—*Fissure of the rectum: Supposed disease of the uterus: Cure.*—M. F., æt. 30, married, admitted into the "London Surgical Home" November 1st, 1860. Eight years and a half ago, was confined of her first child. Since then she has had constant pain in passing her motions, and lately blood has also passed at the same time. She has for some time had great pain and bearing-down in her womb, and has been treated by many medical men for disease of that organ.

On examination, the uterus was found perfectly healthy; but in the rectum a fissure and two small polypi were discovered.

November 3rd. Divided the fissure, removed the polypoid bodies, and plugged the rectum with oiled lint. 5th. Lint removed. Had ℥ss. of castor oil, which opened her bowels with more ease than had been experienced for nine years. 12th. She now has daily evacuations without the slightest pain, and expresses herself as being free from all her former inconvenience.

Case XIII.—*Fissure and polypus of the rectum, simulating uterine disease: Dysmenorrhœa: Cure.*—Mrs. L., æt. 35. Has been married five years, but had no children. Has been treated by several well-known medical men for uterine disease, but without benefit. Has been also told that her sufferings were partly due to her highly hysterical state, and that

she should exert herself much more than she did. However, the rectum had never been examined, although she complained of pain at stool, obliging her to rest some time afterwards. She, moreover, suffered much from dysmenorrhœa and general constitutional irritation. Upon examination, I found a superficial fissure just within the anus, painful to the touch, besides two small polypi and a portion of prolapsing mucous membrane and loose skin on one side the aperture. I divided the fissure, tied the prolapsed mucous membrane, and cut off the polypoid bodies and the elongated piece of skin beside the anus, and followed the same after-treatment. She steadily progressed after the operation, and at the end of a month was about and well, quite cured of her previous distressing ailments, including the dysmenorrhœa.

Case XIV.—*Fissure of the rectum inducing uterine disorder and general constitutional disturbance: Cure.*—M. A. H., æt. 21; married, no children. Admitted into the "London Surgical Home" July 30th, 1860. About two years ago suffered from severe continued pain in the left side of the abdomen extending down the left leg, great pain on passing her motions, and occasional pain on micturition. Catamenia regular. Was for several months in one of the Metropolitan hospitals, where she was treated with tonics and purgatives, but her rectum was not examined. She was afterwards treated as a consumptive patient at the Brompton Hospital.

On examination I found a fissure of the rectum, a large external pile, and a small polypoid body dropping into the fissure. Aug. 2nd. I divided the fissure, excised the polypoid body, cut off the external pile, and plugged the rectum with oiled lint. Aug. 4th. Bowels opened by castor oil without any pain, a circumstance unknown to her for two years. She rapidly gained flesh and colour, and on August 20th left the "Home" quite well.

This patient was re-admitted on Dec. 10th with another small fissure at a totally different spot in the rectum, and a number of small polypoid bodies all growing near one another. 13th. Fissure divided, and polypoid bodies cut off, and the surface whence they sprang ligatured. February, 1861. She is now quite well.

Case XV.—*Fissure of the rectum simulating uterine disorder: Cure.*—M. S., æt. 58, married. Admitted into the "London Surgical Home" Nov. 27th, 1860. Has been married forty-one years, and has had fourteen children. About nine years ago the "change of life" came on, and since then she has suffered from pain in back, loins, and womb, constipation and passing of bloody motions. She has lost her appetite, and has for a long time been unable to get about with comfort. Has been treated for disease of the womb for several years, but has never had her rectum examined.

On examination, the uterus was found perfectly healthy, but there was an old fissure of the rectum, just close to the insertion of the sphincter ani into the coccyx. There was not as usual a polypoid body, nor any hæmorrhoids.

Nov. 29th. I divided the fissure and plugged the rectum with oiled lint. Dec. 1st. Oiled lint removed; on the 2nd and 4th the bowels were opened by castor oil, when she remarked that "she had not had such a comfortable motion for a long time, she did not know how long."

Dec. 13th. She has lost all pain, eats heartily, and is gaining flesh and strength daily. Discharged cured.

CHAPTER XIII.

CERTAIN SURGICAL LESIONS CONNECTED WITH STERILITY IN THE FEMALE.

A GENERAL dissertation on the causes and treatment of sterility in the female would be out of place in this work, but the frequent dependence and association of that condition with certain surgical lesions of the pelvic viscera, renders a review of these latter in connexion with it a fitting topic for these pages. Indeed, it is a most desirable task to emancipate the subject of sterility from the trammels of quackery, under which it has so long been confined, and to elucidate the circumstances with which it is connected. For, in truth, the subject of sterility has been very much neglected, or, I may say, avoided, by medical men; and we have no work on it in this country of such completeness as to be satisfactory. Dr. Copland, indeed, has a very good essay upon it in his *Dictionary of Medicine;* and Mr. Whitehead devotes some pages to it in his work on *Abortion.* The most complete work that has fallen in my way is one by Dr. Rouhand, published at Paris in 1857. This treatise has afforded me many valuable hints; but my experience has convinced me also of many important matters besides, of some of which I will now say a few words. And first of the causes. Some of these are congenital and structural; others are the result of disease in the generative organs—in the uterus and vagina; whilst others, again, are referrible to sympathy with disease in contiguous viscera; lastly, there are some connected with the state of the general health, the constitution, and the state of the nervous system. The whole may be arranged in the following groups:—

1. Absence of the uterus and ovaries.
2. Disease of the ovaries.

3. Atrophy of uterus and ovaries.
4. Diseases of uterus and of Fallopian tubes.
   - *a.* Hypertrophy.
   - *b.* Inflammation.
   - *c.* Fibrous tumour.
   - *d.* Cancer.
   - *e.* Polypus.
   - *f.* Neuralgia.
   - *g.* Ulceration.
5. Diseases of vagina.
   - *a.* Cancer.
   - *b.* Inflammation.
   - *c.* Leucorrhœa.
     - *A.* With acid secretion.
     - *B.* With alkaline secretion.
6. Imperforate hymen.
7. Contracted os vaginæ.
8. Contracted os or cervix uteri, from
   - *A.* Constriction.
   - *B.* Inflammation of mucous membrane.
   - *C.* Caustic applications.
9. Dysmenorrhœa.
   - *A.* Spasmodic.
   - *B.* Mechanical.
10. Amenorrhœa.
11. Menorrhagia.
    - *A.* Anæmic.
    - *B.* Plethoric.
12. Diseases of rectum.
    - *A.* Hæmorrhoids (bleeding).
    - *B.* Fistula.
    - *C.* Fissure.
    - *D.* Prolapsus ani.
    - *E.* Scirrhus.
    - *F.* Ascarides.
13. Vascular tumour of meatus urinarius.
14. Excessive sexual intercourse.
15. Constant irritation of the clitoris.
16. Secondary syphilis.

Among other causes enumerated by authors are, want of mutual affection and loathing on the part of the woman. With-

out denying *in toto* the influence of the moral emotions upon the reproductiveness of the female, I am disposed to look upon these two causes just named as very problematical, and as having been suggested to the minds of inquirers baulked by failing to discover the other, and real causes of the sterility.

Of the causes admitted in the above table several are clearly irremovable, and the consequent sterility, therefore, incurable; such are absence, or atrophy of the uterus and ovaries; diseases of the ovaries, incurable lesions of the uterus—for instance, cancer, and similar morbid conditions of the vagina. These causes are therefore neither in number nor in prevalence considerable. Those arranged in the other sections may be divided, according to their character, into mechanical and local, constitutional and general, and sympathetic and reflex. The mechanical causes are comprehended in Sections 6, 7, 8, and in 9 in part—*i. e.*, mechanical dysmenorrhœa—and to these may be added an occasional cause—viz., closure of the Fallopian tubes. The constitutional causes, or those operating through the general health, are amenorrhœa, menorrhagia, excessive sexual intercourse, constant irritation of the clitoris, secondary syphilis, and spasmodic dysmenorrhœa. Sympathetic and reflex causes, originating in disease of other viscera contiguous to the uterus, are comprised in Sections 12 and 13, and in 4 and 5 in part; the two former including diseases of the rectum and vascular tumour of the meatus urinarius.

As said before, it is not my present business to consider the action and removal of all these causes, but to notice those only associated with such surgical lesions as are remediable by operation, and to indicate what that operation is.

Now, several of the surgical lesions concerned in producing sterility have already been described, and their operative treatment pointed out; it would therefore involve useless repetition to reconsider them from the present special point of view. For instance, tumours and hypertrophy of the uterus, imperforate hymen, and vascular tumour of the meatus urinarius, have already received attention as surgical diseases removable by certain operations, which are just as applicable whether those lesions induce sterility or not. So, likewise, the mechanical

form of dysmenorrhœa, dependent upon permanent or spasmodic stricture of the os and cervix uteri, has had its cure indicated in the history of the operation for constriction of those parts.

There remain, therefore, the causes of sterility derived from sympathy with disease of the rectum, as enumerated in Section 12. The remarkable dependence of uterine disorder, not unfrequently upon diseases of the rectum, has been generally shown in Chapter XII. This will facilitate our comprehension of that functional disturbance of the reproductive organs marked by sterility, which has rectum disease as its cause. The connexion was in that chapter proved by cases, and in the present one I shall resort to the same evidence. But I will premise my observations by remarking that these sympathetic causes of sterility were not recognised in any accounts of that condition that I have met with, and yet the general law of sympathy, particularly between contiguous organs, closely associated both in vascular and nervous supply, might *à priori* have suggested the fact. And how much more powerfully may this law be presumed to operate between the uterus and rectum, particularly upon the special functions of the former and the delicate physiological process of impregnation. Take, for example, diseases of the rectum such as piles and prolapse, attended by considerable hæmorrhage; the drain of blood caused by them immediately interferes with the uterine function of menstruation, and, by its frequent recurrence, probably also with the due supply of blood to the uterus; then as a very probable occurrence, the condition of the uterine cavity is such that impregnation is impossible, or if impregnation occur, the developments from the internal surface necessary to the lodgment and growth of the embryo, fail. The supply of blood sent to the pelvis appears insufficient to meet the normal demands of the uterus and the abnormal flux from the rectum.

Or, again, to take diseases of the lower bowel unattended by loss of blood, such as fissure and fistula of the rectum; in these the irritation and the pain, together with the impediments created to the proper action of the bowel and the consequent distension and frequent congestion about it, become conjointly the cause of disturbed uterine function through the medium,

primarily, of the nervous system; and this deranged function is often manifested by an irritable and sometimes by a congested uterus, two conditions inimical to impregnation and conception.

The overlooking of these mutual relations between the uterus and rectum, and the neglect to examine into the state of the latter, lead to unsuitable and unsuccessful treatment; and, indeed, I have seen many females treated for uterine disorder, or regarded as sterile from some unseen mysterious causes, who have been, in fact, the subjects of disease of the rectum, the cure of which was alone needed to dissipate the supposition, whether of uterine disease or of procreative impotence.

I will now proceed to narrate two or three illustrative cases.

Case I.—*Sterility from prolapsus ani.*—Mrs. H., æt. 33, married ten years, without family, consulted me on account of prolapse of the bowel at every act of defæcation, accompanied by loss of blood; the general health had greatly suffered. During married life the catamenia had been scanty, thin, and light in colour, but during the menstrual period much blood was lost from the bowel. The affection of the bowel I pointed out was readily curable, and as there was no uterine disease to be detected, that the state of the bowel was the probable cause of her having had no family.

After preparatory regimen and medicine, I proceeded to operate a week after the menstrual epoch. The bowels having been previously freely opened, I applied three separate ligatures to the prolapsed mucous membrane, and returned the tied parts within the sphincter. Opiates were freely given, and continued for a week, so as to keep the bowels confined, and she was placed on generous diet, with wine. This patient progressed most favourably; the bowel was completely relieved, and at the next catamenial period the uterine discharge was much augmented both in quantity and colour. Tonics and good diet were persevered with, and she lived apart from her husband for two months. Soon after this period she became pregnant, and advanced to the full time, and was delivered of a fine healthy child.

Case II.—*Fissure of the rectum.*—Mrs. M., æt. 26, married three years, without children, consulted me, and made the following statement. Ever since her marriage she had suffered from more or less pain about the womb, not acute, but of a dull, wearying kind. Catamenia were regular, both as to time and quantity, and she suffered very slightly from leucorrhœa: had no pain on sexual intercourse, but felt generally ill, and suffered from dyspepsia. An examination *per vaginam* satisfied me there was no disease of the uterine organs. On further inquiry, she told me she suffered constant pain at stool, and frequently passed a small quantity of blood. A local examination showed me a deep and long-standing fissure of the rectum, which to my mind explained all her symptoms, and was the probable cause of her sterility. After preparatory treatment, I accordingly operated in the usual way by dividing the fissure. The after-treatment

consisted in placing her under the influence of opium, giving her at once two grains, and every four hours after, one grain, for the first twenty-four hours; then, for the next day, one grain every six hours; and for the next week, a grain night and morning: my object and principle being, not only to secure perfect quiet for the bowel, but to obviate all pain. With this treatment was conjoined generous diet, and, according to rule, the recumbent posture was insisted on until the parts were well healed; at the end of nine days the bowels were opened by repeated injections of tepid water. This plan of confining the bowels after operations about the rectum and perinæum, the use of generous diet and wine, and the subsequent administration of enemata, have already received a full consideration.

CHAPTER XIV.

OVARIAN DROPSY, OR ENCYSTED DROPSY OF THE OVARY.

THIS form of dropsy has for a long time been recognised, and has received, especially of late years, the attentive study of many eminent practitioners of medicine. Formerly, indeed, it was reckoned an incurable malady, and the general opinion was against meddling with it by operative treatment, and in favour of palliative measures to remedy its concurrent evils; but at the present day most surgeons regard it as legitimately amenable to their art, and accordingly its treatment now constitutes an important chapter in practical surgery.

The ovarian disease, with which it is my purpose principally to deal, consists in the development and progressive growth from the ovary of one or more cysts, commonly having the power of reproducing their like by an endogenous growth, and of secreting a quantity of fluid, often well nigh unlimited, from the membrane lining their interior. Sometimes there is but one cyst in an ovary, without any secondary cysts belonging to it; such is called a simple, unilocular or barren cyst. When more cysts than one are present we have "*multilocular*" disease; but this may be of two kinds, according as the co-existing and contiguous cysts have originated, as so many separate morbid growths within the same ovary, or as they are secondary productions from a primary cyst. The former variety is known as "*multiple*," the latter as "proliferous" or "compound" cysts.

The "simple," "multiple," and "proliferous" cysts just defined constitute in a very large majority of instances the disease known as ovarian dropsy, and for which operative mea-

sures are chiefly demanded; but there are other morbid conditions of the ovary productive of ovarian enlargement, and often accompanied with more or less cystic effusion, but less the subject of curative attempts than those previous varieties. Such are hydatid growths of the ovary, "dermoid" tumours containing hair, teeth, and other substances, and "colloid" disease. And besides these ovarian tumours there is a variety of dropsy produced by occlusion of the Fallopian tubes and subsequent effusion, which very closely resembles ovarian dropsy, and may rightly claim notice in a history of this condition.

But before noticing these several morbid states last mentioned, I shall attempt a short *resumé* of the pathology of true ovarian cysts; and first of

A. *Simple Cysts.*—A simple cyst of the ovary is, as its name implies, a one-celled or unilocular sac, which may be so small as to be included within the substance of the ovary, or otherwise range in size from the dimension just named, and when it can only be exhibited by a *post-mortem* examination, to that of a tumour as large as the head of an adult. It is rare, however, for a truly simple cyst to acquire this large size, whereas compound cysts very generally exceed it. And in many instances we may presume that compound cysts have originated as simple sacs, and have acquired their multilocular character by endogenous growth. We are not likely to become acquainted with a simple ovarian cyst until it has acquired dimensions which render it perceptible as a pelvic tumour, and then, most likely, endogenous growth has commenced within it, and its unilocular character been destroyed. Moreover, when the cyst has attained a considerable size, the ovary itself is noticeable only as a small appendage at its lower part, and then it may or may not contribute by its substance to form the pedicle and lowest portion of the coverings of the tumour. At the same time the Fallopian tube of the affected ovary is stretched over the distended sac; the broad ligaments of the uterus lengthened, and the uterus itself generally elevated, tilted forwards, and, as Kiwisch says (in his admirable treatise on *Diseases of the Ovaries*, translated by Mr. John Clay, of Birmingham, 1860, p. 103),

"so much lengthened that it often attains double its normal dimensions. It is also found generally in a relaxed blenorrhoic condition."

From their smaller size, and consequent less pressure on surrounding viscera, adhesions are less common in the case of simple than of compound cysts; and, likewise, the same circumstances lead to their frequent presence posteriorly to the uterus in the recto-vaginal pouch, at least until such times as their growing bulk forces them upwards from the pelvic cavity and forwards, in front of the intestines, into the abdomen. But as Kiwisch remarks, when ovarian cysts develope as a consequence of oophoritis, lymph may be effused, and cause their adhesion to neighbouring parts and their more lateral position. Still, this cause of ovarian dropsy is, I believe, of less frequent occurrence than many suppose; for I agree with Dr. Arthur Farre (*Todd's Cyclopædia of Anatomy*, article "Uterus and its Appendages," p. 577), "that the process of ovulation is occasionally disappointed or interrupted, and that the follicles, whose natural development has been interrupted, may, like the hydatiform placenta, become the seat of a low form of nutrition, terminating in effusion and collection of various dropsical fluids."

Lastly, simple cysts do not present the irregular outline of the compound variety, but are commonly globular, with a smooth surface, and more readily afford evidence of fluctuation, than do multilocular cysts, in which the fluid is imprisoned in numerous agglomerated sacculi. If tapping be resorted to, this affords the most clear indication of the nature of the cystic disease, since after the evacuation of a simple sac the whole tumour vanishes. But such simple cysts are rarely met with in practice; for patients mostly are not cognizant of their existence until their size is very considerable, and until, in all probability, their simple character has been replaced by the multilocular.

On the growth of a cyst from the ovary, this organ, in most cases, wastes; but it will occasionally happen that its substance, or stroma, undergoes considerable hypertrophy, and acquires increased hardness. This at times proceeds so far that it assumes a fibro-cartilaginous consistence, and has even been

described as a scirrhous transformation, though all evidence of its malignant character has been wanting. Farther, according to Dr. Robert Lee, the ganglionic nervous structures about the ovaries and uterus enlarge when the former are invaded by cystic disease.

B. *Multiple Cysts.*—These constitute a variety of simple cysts, depending on the concurrent production of two or more of the latter in the same ovary, which in the course of their growth come into apposition, and form an apparently multilocular tumour. Mr. Paget drew attention to this variety in his *Lectures on Tumours* (1853), in the following paragraph, which sufficiently describes it:—"It is not unfrequent to find many small cysts formed apparently by the coincident enlargement of separate Graafian vesicles. These lie close, and mutually compressed; and as they all enlarge together, and, sometimes, by wasting of their partition walls, come into communication, they may at length look like a single many-chambered cyst, having its own proper wall formed by the extended fibrous covering of the ovary. Many multilocular cysts, as they are named, are only groups of closely packed single cysts; though, when examined in late periods of their growth, and especially when one of the group of cysts enlarges much more than the rest, it may be difficult to distinguish them from some of the proligerous cysts." In his just-published essay on "Tumours" (in the *System of Surgery*, edited by Mr. Holmes, 1860, p. 469), Mr. Paget observes that in general these "multiple" cysts may be distinguished from the proligerous, since "in the one case, the numerous cysts are only contiguous, and in mutual contact at their adjacent walls; in the other case, some are enclosed within others, or are outgrowths from others' walls."

However, at the best the distinction is usually not easy, and, after all, as far as practice is concerned, of small moment.

C. *Compound Cysts*—otherwise called "*multilocular*," or "*proliferous*," and, by Kiwisch, "*cystoids*"—are formed by the growth of a secondary and, it may be, of a tertiary, race of cysts from the primitive ovarian cyst. This development of new cysts is usually described as "endogenous," because it

more commonly takes place from the interior of the parent sac; however, it may proceed from its exterior, and so far, therefore, be entitled to the term "exogenous." But whichever be the direction of their growth, they originate from the fibrous wall of the parent sac, and acquire a lining similar to that of its interior: moreover, those that grow from within the old sac necessarily push its lining membrane before them, and are thus enveloped by it.

The secondary cysts develope mostly many together, but some one or more outstrip the rest in growth, and occasionally the extension of one of them is so rapid that its walls give way, and its contents are discharged within the parent cyst. The same holds true of the tertiary cysts in their relation to the secondary, and when this third generation arises, the ovarian tumour becomes a complex multilocular growth, more or less irregular on its surface, an irregularity naturally increased by the outward direction of any of its component sacs or cells. Indeed, where other sacs form externally to a principal one they frequently may be felt like appended tumours, and when but partially developed, or their walls comparatively thick, and their distension by fluid inconsiderable, they feel like solid growths. However, in course of time their cystoid character becomes evident, and more particularly after the evacuation of the principal sac.

The successive crops of cysts produced within the original sac often entirely fill and distend it, so much so indeed at times as to lead to its spontaneous rupture. And as already noticed, a similar breaking down and coalescence of adjoining cysts is of frequent occurrence, as well from over distension as by the effect of compression or of inflammatory action, in producing, softening, and absorption of the intervening septa. The partition walls are sometimes not entirely destroyed, but are represented by remaining bands traversing the false single cavity.

Dr. Hodgkin, to whom the profession is greatly indebted for his exploration and descriptions of ovarian tumours (*Lectures on Serous and Mucous Membranes*, and *Med. Chir. Trans.*, vol. xv.), distinguishes from the preceding variety of "broad-based"

secondary and tertiary cysts, a set of small growths of a villous, warty, or pedunculate character. Kiwisch has noticed them; but the best description of them we have met with is one by Dr. Farre (article "Ovary," *Cyclopædia of Anatomy*, &c., p. 581), from which we make the following extract:—These pedunculate processes "sometimes grow from the walls of the principal cyst; and, indeed, in almost all cases which I have examined, after the sac has attained a certain size, patches of these pedunculated sacculi may be observed scattered over the interior in various places, but they are more constantly observed growing from the interior of the secondary cyst. These little sacculi appear at first in scattered patches, under the form of little round grains, thickly covering the lining membrane, which they raise above them, and so closely set, that two or three hundred may sometimes be counted in the space of a square inch. When these elongate, mutual pressure causes them to assume a filamentous condition; but when greater freedom of growth is enjoyed, their extremities commonly dilate into little pouches, or buds of another order sprout from the sides and extremities of the original growths, and convert them into a multitude of little dendritic processes, which roughen the inner surface of the larger cysts, or fill more or less completely the cavities of the smaller ones. If a section be made of these dendritic processes, they are seen usually to be solid at their base, the white fibrous tissue of the parent cyst wall, from which they spring, being easily traced into their stems and branches. But at their extremities they become dilated into little pouches filled with fluid, similar to the little pediculated cysts, with which they are abundantly intermixed. These little cysts and processes are covered by epithelium, and it is probable that they are the active agents in the elimination of the various fluids by which the ovarian cysts, of whatever order, are commonly filled."

Multilocular are of very much more frequent occurrence than simple cysts, and attain much greater dimensions. Instances of ovarian tumours are on record weighing, with their fluid contents, from 50 to 100 lbs. "Probably (as Dr. Farre remarks, *Op. cit.*, p. 582) the only limit to the increase of size

of the morbid ovary, after it has risen out of the pelvis into the abdomen, is occasioned by the pressure which the spine, diaphragm, and abdominal walls exercise upon the cyst; for the parietes of an ovarian cyst appear, in most cases, to possess an unlimited capability of multiplying the fibrous element of which they are principally composed, whilst the power of rapidly replacing the fluid after their contents have been drawn off, proves both the unrestricted capability of secretion inherent in the cyst walls, and at the same time the influence which pressure exerts in keeping the secretion for a time within certain limits."

Such is a sufficient account of the pathology of the three distinguishable varieties of ovarian cysts considered separately; there remain several matters which may be treated of generally as pertaining more or less to every form. And first of the *origin* of cystic tumours of the ovary. This has been the subject of much discussion, but most pathologists now concur in representing it as a morbid dilatation of a Graafian vesicle or follicle. The other explanations are, that an ovarian cyst proceeds, as a new formation, from a pathological blastema by the endogenous growth of cells or nuclei, or, in Rokitansky's language, proceeds from an elementary granule which grows, by intus-susception, into a nucleus, and this into a structureless vesicle; or that, according to Wedl, the cyst consists of an excessive augmentation of volume of the areolæ of the areolar tissue. However, Hodgkin, Kiwisch, Farre, Paget, and others, exhibit good grounds for the hypothesis of their origin from simple dilatation of Graafian vesicles. Kiwisch remarks (*Op. cit.*, p. 101), "there are cases where there can be no doubt of this mode of origin; for in one and the same ovary we may observe follicles which present a progressive enlargement in juxtaposition with others which still retain their natural size. At the commencement of the disease they can often be raised from the surrounding stroma in the form of shut sacs." Dr. Farre (*Op. cit.*, p. 590) advances a similar argument, but more in detail, and adds, that "the occurrence of these cystic formations is limited to that period of life when the Graafian follicle is in a state of activity. They are not found as new formations

after the usual time at which the follicles have ceased to be discoverable in the ovaries, as natural structures, nor do they occur before the period of puberty has arrived, except in cases much more rare than those of an unusually early development of these follicles, or of precocious puberty." And this able physician and physiologist goes on to say :—"These arguments apply more particularly to cysts with fluid contents. How far they may also serve to explain those which contain more highly organized products is less obvious. But it must still be remembered that cystic formations of all kinds occur far more frequently in the ovary than in any other part, whilst there is nothing peculiar in the stroma of the ovary, or that portion which is external to the follicles, which would render it more particularly liable to cystic formations arising out of dilated areolar spaces, than similar fibrous structures occurring in other portions of the body where cysts occur."

But if this account of the origin of the parent cyst be true, the secondary or other cysts subsequently developed in its interior are, in all probability, derived, as Mr. Paget presumes (*Lectures on Tumours*, p. 60), "from germs developed in the parent cyst walls, and thence, as they grow into secondary cysts, projecting into the parent cavity; or disparting the mid-layers of the walls and remaining quite enclosed between them; or, more rarely, growing outwards and projecting into the cavity of the peritoneum."

An ovarian tumour, whether simple or compound, has the peritoneum for its external covering. At its first appearance this serous membrane is pushed before the growing tumour, and ultimately envelopes it. Beneath the peritoneal covering is the proper coat of the sac, of a yellowish white, or brownish yellow colour, and of a fibrous consistence; and lining this again is a delicate membrane of an epithelial character. Lastly, some tumours, particularly those of the unilocular variety, derive an incomplete covering, limited more or less to their place of attachment, from the stroma of the ovary. This supplementary tunic is chiefly present where the dilated vesicle has been originally deeply seated, and has consequently in its growth thrust

the superincumbent stroma before it, an expansion and growth of the stroma itself simultaneously taking place.

It is in the middle tunic that the vessels of the sac are found. These sometimes are small and few; at others much enlarged and numerous; they are always derived from the proper vessels of the ovary. In thus deriving its blood directly from the part from which it springs, an ovarian tumour differs from an hydatid cyst; unlike which, too, it has no such peculiarly independent existence, and no acephalocysts in its contents. It may be here remarked that hydatids of the ovary are very rare.

The walls of an ovarian cyst vary much in consistence and thickness in different cases, and even in different parts of the same sac. Also, in a mass of cysts, similar variations are often met with in the several individual ones, but, as a rule, the walls of the primary cyst are thickest. An increased thickening may be due to simple hypertrophy of the tissues, but more frequently to a morbid process established in the walls. Thus they may become thickened and indurated throughout, or only in parts, by inflammation, or rarely by tubercular, or still more seldom by cancerous deposit. On the other hand, inflammation may soften and waste them, or render their consistence friable and lacerable; or ulceration and even gangrene may be set up, and perforation follow; or lastly, they may undergo calcareous degeneration. Cases have been narrated where the tunics have attained an inch in thickness. In a tumour dissected by Mr. Stockwell (*Provincial Medical and Surgical Journal*, No. 2, 1851, p. 38), where dropsy had been perceived only three years, and tapping but once resorted to, the anterior wall was one inch and a half thick; the posterior rather less. In one of Mr. Wilson's cases (*Provincial Medical and Surgical Journal*, No. 2, 1858, pp. 35, 36), two thick bands stretched across the front of the sac, which were found to be offsets from the broad ligament, and to contain the several vessels. Often, on the contrary, the tumour has very thin and flexible walls, and a whitish, shining, or glistening appearance. The walls are, however, in all cases thicker at the part where the cyst is

attached to the ovary, whether it be so by a pedicle, or by a broad base. The thickening of a sac chiefly takes place in its middle wall; the peritoneal, however, is often thickened and rendered opaque, and the lining membrane may frequently be split into several layers of epithelium, mixed with connective tissue. On the contrary, the epithelium may, as in old cysts, be indistinguishable.

The lining membrane, moreover, frequently shows the result of morbid action. This it may do by partial or by general inflammatory injection; by adherent flakes of lymph; by the oozing out of pus; by a granulated or a puckered surface; by softening, and by various coloured spots. A fibrinous or a thick epithelial exudation may entirely line a cyst, and become vascular, and eventually give rise to hæmorrhage within the sac. An alteration of the lining membrane generally happens after a cyst is opened; for, as a rule, the qualities of the fluid subsequently secreted are changed. But apart from these ulterior changes in quality a precipitation from the contents of a cyst is sometimes witnessed, and crystalline matters, consisting chiefly of cholesterine, thrown down over the internal wall. Lastly, the thickening of the coats of an ovarian cyst is at times complicated by great induration and a fibro-cartilaginous consistence acquired. Indeed, ossific or calcareous plates now and then appear on the walls, to so great an extent even that the sac may be said to be completely ossified. This happens in old cysts of small size, and is apparently confined to old people.

The inflammatory process, when set up in an ovarian cyst, whether simple or compound, frequently extends to its peritoneal surface, and thence to organs contiguous. The inflammation of its peritoneal coat leads to thickening and opacity, and mostly to the effusion of lymph, which causes it to adhere to some adjoining part. Either inflammation may extend from the cyst itself to some neighbouring tissue, or the irritation of the cyst may set up that process independently in the tissue, and not unfrequently peritoneal effusion be poured out.

The adhesion of the cyst to surrounding parts, although an impediment to extirpation, sometimes favours a natural cure by

rupture. Adhesions on the posterior surface are very rare, and not to be discovered by examination. It is to inflammation, acute or subacute, within the cysts of an ovarian tumour, that their rapid increase in size is often due; and from it also often result the breaking down, or perforation by ulceration, of septa between cysts, and the rupture of the tumour. This morbid process produces the same changes in the lining tissue of a cyst, as in a normal serous cavity, and effusions of lymph and pus take place, or actual gangrene occurs.

Direction of Growth.—The direction of growth will be mainly that of least resistance. Where several independent sacs exist they pack themselves variously, according to their relations at their origin, their order of development, and the direction of least resistance to their growth. It so happens sometimes, that the disposition of the sacs gives the impression of the existence of disease in both ovaria, or of the transition of the dropsical effusion (after paracentesis) from one side to the other. See case by Mr. Hunt, *Lancet*, Vol. I., 1846; and Cases 2 and 5, published by me in the same Journal, Vol. I., 1846, pp. 371 and 373.

Mostly the tumours press upwards and forwards in the abdomen, but occasionally are felt to be most prominent in the recto-vaginal cul-de-sac.

In consequence of the sacs enlarging in the direction of least resistance it is, as Dr. Simpson observes (*Monthly Journal of Medical Science*, Vol. XV., 1852, p. 365), that "we have the largest cyst or cysts in the mass generally, if not always, placed *first*, at the upper or abdominal extremity of the tumour,—and, *secondly*, on the anterior part of the abdominal tumour, rather than on its lateral or posterior parts; the cyst or cysts in front growing more readily, because they are less resisted in their growth by the abdominal parietes in front, than the cyst or cysts placed towards the sides or back of the tumour, inasmuch as these latter are repressed by the denser fabric of the lateral and posterior walls of the abdominal cavity. It is in consequence of this pathological arrangement that, by the operation of paracentesis abdominis, we are usually able to evacuate the largest cyst or cysts in the mass; and in consonance also with the same law, the contents of such more prominent cyst or

cysts are usually far more fluid, and become more easily capable of being evacuated through the trocar than are the contents of the more condensed and undeveloped cysts of the tumour."

The forward and upward growth of ovarian tumours proceeds so far that they not unfrequently reach the under surface of the liver, the stomach, and the transverse colon, and contract adhesions with one or other of those viscera.

Contents of Ovarian Cysts.—The physical and chemical characters of the contents of ovarian cysts vary very much in different cases; and where the tumour consists of several sacs—*i.e.*, is multilocular—they often differ much in the various cells. The contained fluid is frequently like the serum of the blood, of a pale yellow, or straw colour, but containing only a trace of albumen. Secretion of this kind is, according to my experience, the rule in unilocular cases, or in those having but few cells, and of not long standing, and not previously punctured. This pale liquid may also be limpid, or be mixed with more or less mucous-looking but really fatty matter, sometimes in quantity sufficient to give it a gelatinous or ropy consistence. At other times the cystic fluid is coffee-coloured, or thick, as if mixed with coffee-grounds; and when like this, has been by some considered peculiarly diagnostic of ovarian disease. This variety likewise will sometimes be met with in ovarian tumours when first tapped, and may recur; but it appears oftener after the first tapping. The peculiar colour may be assigned to the presence of altered blood. The dark-coloured gelatinous fluid sometimes discharged, is derived either from the gangrenous softening of the internal septa of the cyst, or mostly from putrefying blood. I have met with opaque contents, of a yellowish-white colour, which under the microscope appear to consist almost entirely of fat-globules, and which, when allowed to stand, form a semi-solid, greasy mass. Cysts containing such matter seem to be accompanied in their formation by unusually great pain and disturbance of the system. Occasionally I have evacuated from a cyst a black, ink-like liquid; at times a gruel, or custard-like one; and, in some instances, a mixture of fluid with semi-solid, brain-like matter.

After tapping, an unhealthy state of the sac is apt to ensue, and an ichorous or putrid fluid escape; or purulent matter forms and discharges, with or without fetor and gases from decomposition. But pus also occurs in unopened sacs from spontaneous inflammation, and also, as Dr. Bennett supposes, from the formation of pus-corpuscles in the gelatinous contents.

A cyst, after being once evacuated, often does not again secrete fluid of the same character as before. The very fact of emptying the sac seems to change the character of its secreting membrane. Even if an alteration of colour be not met with, there is frequently one in the consistence. The change from a clear to a more or less opaque, or to a mucilaginous liquid, is common on a second tapping. Not unfrequently the transition is still greater, and a second emptying of a cyst produces a coffee-coloured, or gruel-like, or a flaky discharge. The semi-solid brain-like and flaky substances may be commingled with either variety of liquid contents; and it may happen that the cyst becomes refilled with blood, either from perforation of a vessel or from the general vascularity of its interior. This hæmorrhage has in some instances been so considerable and so long continued as to induce fatal anæmia.

The alteration of the contents of a cyst after its evacuation by tapping is less frequent, and commonly less grave in simple cysts than in compound. In the former the fluid is generally like thin serum, and of a pale straw colour, and when withdrawn by tapping is mostly replaced by similar, or by fluid even less rich in organic matter. In the case of compound cysts the discharged fluid may be altered not only by a change in the secreting powers of the cyst itself punctured, but indirectly also by the bursting into it of the contents of adjoining cysts.

The quantity of contained albuma and other ingredients of the dropsical fluid varies much in different cases.

Kiwisch has presented a table of ten analyses, to which I may refer the reader; in the meanwhile I may usefully extract a concise table, representing the chemical results in four cases, as given by Dr. Farre (*Op. cit.*, p. 583), from Dr. Rees.

	No. I. Clear, light straw-coloured Alkaline. Sp. Gr. 1017.	No. II. Dark-coloured muddy neutral. Sp. Gr. 1017.	No. III. Approaching in character to white of egg. Alkaline.	No. IV. Clear, straw-coloured, containing flakes of a pearly, scaly-looking substance.	Analysis of the serum of the blood for comparison.
Water	190·9	190·70	195·2	187·7	181·2
Albumen in the traces of fatty matter	4·1	4·25	1·8	7·6	16·5
Albumen existing in solution as albuminate of soda	3·7	3·62	1·1	4·0	0·4
Alkaline chloride, and sulphate, with carbonate of soda, from decomposed albuminate .	0·8	0·78	1·2	—	1·6
Extractive soluble in water and alcohol . .	0·4	0·45	0·5	0·5	0·3
Chloride of sodium with carbonate, from decomposed lactate of alcoholic extract . .	0·1	0·20	0·2	0·2	
	200	200	200	200	200

Thus, besides albumen, ovarian fluid contains various alkaline salts, and particularly the albuminate of soda.

In vol. viii. of the *Transactions of the Pathological Society of London,* Dr. D. G. Gibb has narrated the careful dissection of a proliferous cyst, and the analysis of the fluid found in the various cells, to which I would refer the reader for some very interesting details, which want of space alone prevents my introducing in this place.

It may be stated generally, that an increase of density in the dropsical fluid (associated as it is with an augmentation in the animal and saline constituents), whether that increase manifests itself by a mucilaginous consistence, a more plentiful production of flaky, or gruel, honey, or brain-like matter, betokens a more depraved or morbid condition of the cyst, and indeed of the general health, and consequently a condition less amenable to cure. However, I am disposed to believe that, in some few cases, such a morbid change may take place in the secreting membrane of the cyst, from the effects of great distension or of pressure, and of repeated paracentesis, that its secerning powers may be to a great extent, or perhaps entirely, lost, and the cyst consequently remain as an inert mass within the abdomen.

An instance of this nature was, I think, presented in a case of Mr. Bryant. (*Lancet*, 1849, vol. ii. p. 9.) On the occasion of the third tapping, a fluid of the consistence of gruel was evacuated, having to the eye a near resemblance to a purulent discharge. Subsequent to that time, the previously enormous sac remained nearly inactive, with dimensions greatly shrunk. If this view be correct, some prospect of benefit is attainable even in cases otherwise desperate.

Under the microscope are seen various small corpuscles, and numerous large and compound cells filled with granules, together with fat-globules and delicate plates of cholesterine. Dr. Hughes Bennett (*Edinburgh Medical and Surgical Journal*, vol. lxv. 1846, p. 40) states that "the flocculi often floating in ovarian fluid, are patches of epithelial membrane, more or less united together by granular matter. Sometimes it is filamentous, with granular cells and other products of inflammation. The jelly-like matter, when consistent, presents all the characters of coagulated liquor sanguinis." In considering the diagnosis of ovarian dropsy, I shall have again to refer to the microscopical as well as the chemical characteristics of the fluid, and will therefore here enter no farther on the subject.

The quantity of fluid which may accumulate in an ovarian tumour is certainly astonishing. As much as 120, and even 140, pounds of liquid are recorded to have been withdrawn from one sac. In a case I have described (*Lancet*, vol. ii. 1849, p. 9) I drew off 93 pints at one tapping. Moreover, it is well known that a cyst once emptied secretes more rapidly than before. The last case quoted shows this. The first enormous quantity removed was the result of four years' accumulation; but, after its discharge, 49 pints were secreted and evacuated within two months, and a further 52 pints after the lapse of little more than three months.

History affords many instances of this rapid and repeated production of ovarian fluid, when paracentesis was generally the only method of relief attempted. To quote one or two in illustration, "Mr. Martineau drew off nearly 500 pints in a twelvemonth; and from the same patient upwards of 6600 pints by eighty operations, within twenty-five years." (Copland, *Dictionary of Practical Medicine*, vol. i. p. 664.) Dr.

Copland adds, "In a case under the care of my friend Mr. Worthington, of Lowestoft, the quantity of fluid taken away by him amounted to nearly as much as in the case detailed by Mr. Martineau." (See also Case II. of excision of a portion of the cyst.)

In examples of this sort we must suppose the enormous bulk of fluid drained from the system contained little animal matter—albumen; and that the sac, after being opened even repeatedly, continued to secrete, contrary to the rule, a similar thin, aqueous liquid. Dr. D. G. Gibb has recounted (*Transactions of the Pathological Society*, vol. vii. p. 273) the structure and appearance of an ovarian cyst, weighing 106lbs., which had never been tapped, and which was exhibited before the Society.

Occasionally, actually solid tumours are produced in connexion with the cysts, both internally and externally, and soft or hard cancerous formations more rarely appear about and between them.

"In rare instances," says Dr. Copland (*Dictionary of Medicine*, vol. i. p. 654), "sebaceous matters, with long hair, have been found in the same ovarium that contained large dropsical cysts, and even in the same cyst with the watery collection; the cyst in which the hair and fatty substance have been formed, having subsequently become the seat of dropsical effusion." Another uncommon mixture is that with hydatids.

One or both ovaria may be affected: the latter circumstance, however, is rare, at least so far as the production of large cysts is concerned; but it is not uncommon that, where encysted dropsy of one ovary exists, cysts in an early stage are present in the other. (See Case XXVI.) The two ovaries are not equally prone to disease, the right one being the more so.

Causes.—The formation of cysts does not, as a general rule, occur until the sexual functions of the ovary come into exercise at puberty; but it may appear first after the cessation of the menses, whether *de novo*, or only upon a germ of morbid action developed in previous life, it is impossible to say.

"Although," says Dr. Copland, "chronic cases of it are found in very old females, yet it rarely originates at an age much above fifty."

Cases are related of ovarian dropsy occurring in the thirteenth

and fourteenth year, and I have related one case of its existence in the fifteenth year, and before menstruation was established; and a second, of its appearance at puberty. Taking those cases, of which I have the histories, ovarian disease made its appearance in by far the majority between twenty-one and forty years of age. The average age at which the disease was discovered is about twenty-six; hence, so far as my collection of cases will warrant the deduction, the tendency is greatest during the period of the highest functional activity of the ovaria; and does not arise so frequently in further advanced or middle life, as is mostly represented by writers. It is not uncommon among the unmarried, and the larger number of diseased married females have, according to my experience, borne no children, though several years married. But Dr. F. Churchill believes that those who have borne children are more obnoxious to it than the unmarried.

Respecting the causes of cystic disease of the ovary little can be stated with certainty. The generally admitted *predisposing* causes are—the scrofulous habit; debilitating causes in general; and excessive or too frequent menstruation. "Only the puerperal condition (says Kiwisch, *Op. cit.* p. 40) and the time of menstruation . . . . apparently increase the disposition to ovarian disease to a certain extent, because at these times the ovaries are placed in conditions which make them more sensitive, as it were, to external and internal injurious influences." The *exciting* causes are not well understood: no definite cause often can be assigned by the patient, its onset being so gradual and insidious; and even when its origin is attributed to some particular circumstance, the statement must be received with caution. Among exciting causes are enumerated external violence, over-exertion, venereal indulgence, mismanagement in labour or in miscarriage, cold, checked menstruation, or leucorrhœa from any cause, uterine irritation, or inflammation; and the operation of the emotions, as fright, anxiety, &c.

It is supposed that the disease may take its rise from ovaritis; this may be sometimes the case, but yet, as Dr. Copland observes, "there are numerous objections to this view; for even when the tenderness and pain in the region of the

ovaria, accompanying its commencement, are greatest, there is also a frequently recurring and copious menstruation, indicating an excited, rather than an inflamed state of these organs." Kiwisch, on the other hand, admits (*Op. cit.* p. 110) that "inflammation of the ovary, as well in its peritoneal as in its follicular form, appears to cause dropsical enlargement of the graafian vesicles, primarily by the difficulty it causes in the evacuation of the follicles by hypertrophy of their walls and surrounding parts. The circumstance is not to be overlooked that cyst formations have occurred more frequently from dysmenorrhœa. But even this incident can furnish no sure data, since the reverse has also been observed."

In a considerable number, ovarian disease has made its appearance soon after the birth of children; the process of parturition, or the pregnant state, seeming to have been in some way instrumental in developing it. With reference to this, I may remark that, during the menstrual flow, and the periods of conception and delivery, the ovaries are in an excited condition, and therefore the more liable to take on diseased action under the operation of any existing external cause; and thus a reason appears for the observed fact, that the commencement of ovarian disease is often traceable to such periods. It is a common observation, that married ladies without children are particularly prone to disease of the ovaries; probably from the partial and insufficient excitation of those organs—*i. e.*, the natural and sufficient stimulus to reproductive action may be wanting, or they may be incapable of taking it on; in either case, the stimulus they undergo may consequently serve only to kindle morbid or abnormal action. This notion derives countenance from those examples of encysted dropsy where the sac contains hair or other organized tissue.

Symptoms and Course of the Disease.—The onset of ovarian dropsy is frequently so very insidious, that the early symptoms are unobserved by the patient, or referred to some other cause, and it is not till the disease has unmistakeably shown itself in a more or less advanced stage that medical aid is sought for, and directed to its cure. Owing also to this non-recognition of the disease at its origin, it is difficult to fix on the symptoms

peculiar to it at that period; the patient may probably remember, at some past time, having suffered pain in the region of the ovaries and uterus, and, perhaps, tenderness on pressure, with a feeling of fulness; or the malady may have crept on unheeded till a visible increase of the abdomen reveals it, the patient being unable to remember any previous definite symptoms.

In not quite half of my cases, pain, lancinating and paroxysmal, occurred; but in the others it was not mentioned as present, although the probability is, that the dropsical enlargement did not come on without some, which might, at the time, be very readily assigned to any other cause but the true one, and be subsequently forgotten.

Again, it may be remarked, with respect to those instances of the absence of pain, that more were married women, of mature age, in whom we might consequently expect the morbid process to proceed with less suffering than in young unmarried women, or in those married ones in whom pregnancy or parturition seems to act as a predisposing cause. And, in general, we may assume that the pain will be in direct ratio with the activity of the morbid process established.

I believe, therefore, we may fairly infer that, as a rule, ovarian dropsy is ushered in by the occurrence of pain; that this pain will be less in married females who have borne no children than in others, and especially if they have advanced near middle age, and the disease be slow in its progress.

So soon as the dropsical tumour growing from the ovary acquires a moderate size, and is still confined within the limits of the pelvis, it will mostly be a source of annoyance by its pressure upon, and interference with, the position as well as with the functions of neighbouring organs. Thus, from pressure on the bladder, irregularity in the discharge of urine, and occasionally actual stoppage; from contact with the rectum, constipation by obstruction, and hæmorrhoids; or instead of mechanical, sympathetic disorders may afflict those organs, and be evidenced by sundry disturbances of function. It is fortunate if these evils be assigned to their true cause, for it is more likely they will be accounted accidental, or assigned to some remote cause.

By its progressive growth, the tumour rises out of the pelvic into the abdominal cavity, and in so doing stretches the Fallopian tube and broad ligament. Other symptoms now become evident, varying, however, according to the state of the patient's health, the nature of the tumour, the rapidity and direction of its growth, the occurrence of inflammatory action, distending its cells by further effusion, and attaching its walls to adjoining tissues, or the setting up of malignant disease. As I shall presently have to detail at much length the symptoms in connexion with diagnosis, it is unnecessary to describe them here as isolated phenomena.

Respecting the state of the sexual functions in cases of ovarian dropsy some few remarks are called for. And first, it is to be remembered that impregnation may occur even when the disease has made great progress, provided always, that both ovaries are not involved,—a circumstance, by the way, of rare occurrence. Indeed, conception appears to be possible until the ovarian tumour by its size so compresses, or interferes with the uterus as to lead to the discharge of the ovum from its cavity. However, though this process be possible in a large number, it is often frustrated by concurrent conditions, and the degree of sympathetic irritation the tumour may cause on the uterus. Hence it is that size alone is of secondary importance. "We have (writes Kiwisch, *Op cit.* p. 125) seen pregnancy occur in compound cysts above the size of an adult's head; while other women affected with tumours the size of a hen's egg were barren. In some cases the course of pregnancy was disturbed by the tension exerted on the uterus; while in other cases it went on to its normal termination, with more or less disagreeable symptoms; but, in the majority, delivery was naturally accomplished. In isolated cases only, especially small, deep-seated tumours, a more or less injurious delay in the birth. Not unfrequently a marked increase, or even an inflammatory irritation of the ovarian cyst takes place after delivery."

In the first stage of encysted dropsy it is common to have irregularity of the menses,—a too frequent recurrence, an excessive flow, or dysmenorrhœa; but suppression is rare.

Nevertheless, we may not be able to discover any such catamenial derangements, and menstruation may have been regular throughout the disease, or become so after its definite establishment. Likewise suppression attends the development of cancerous disease, and is common where a cyst rapidly developes, or where there has been a large drain of its serous contents. Kiwisch says this arrest of menstruation by the latter causes mentioned is more frequent in compound than in simple cystic disease, and that, as a symptom, it is not without its value in the diagnosis and prognosis.

Lastly, it is not to be forgotten that the breasts sympathize with the morbid growth of the ovary much in the same manner as they do with the enlarging uterus of pregnancy, a circumstance hereafter particularly referred to in the diagnosis between ovarian disease and pregnancy.

The Course of the Disease differs greatly in different examples. In one of my cases, æt. 15, the disease progressed to a fatal end in eighteen months from the time of its first discovery; whereas, in another, twenty years elapsed from its appearance until active treatment was attempted. Mr. Martineau's extraordinary case lived twenty-five years, although tapped about eighty times.

J. P. Frank met with a case where ovarian dropsy commenced at thirteen, and yet the patient reached the age of eighty-eight years. Dr. Druitt says (*Surgeon's Vade Mecum*, p. 465,) he "is at the present time (1853) attending a lady, aged about fifty-seven, of tall, commanding figure, in whom an ovarian tumour of immense size has existed for more than thirty years." The very reverse of this prolonged duration is conveyed in the statement of Mr. Safford Lee (Lee *On Tumours of the Uterus*), that he has seen a small ovarian cyst progress so rapidly in a *fortnight*, as to acquire a large size, obstruct the breathing, and severely impede the vital functions. So Kiwisch tells us (*Op. cit.* p. 112) he has "seen a cyst from the size of a fist to that of a child's head appear in the course of from ten to twenty-four days, accompanied by severe local and general symptoms. Its daily enlargement was easily demonstrated by examination." Dr. Frederic Bird, from a knowledge of fifty cases, found that four

died within one year from the commencement of the abdominal enlargement, twelve within two years, twelve within three years, ten within four years, and all the others within ten years.

The rate of increase of a cyst is as various, and the circumstance of the tumour being unilocular or multilocular, appears to have no direct nor constant relation with its rapidity of growth. The fact that, after tapping, the fluid accumulates in almost all cases much faster than before, has already been recorded. No doubt can be entertained that, apart from the actual activity of the ovarian disease, the state of the patient's health will influence very much the rapidity of secretion of cystic fluid—*i. e.*, the more sound, *cæteris paribus*, the constitution, the less the morbid exhalation of fluid. Hence the value of those tonic remedial agents recommended in the treatment of ovarian dropsy.

The character of the cyst, its size and quickness of development, and other circumstances belonging to it, each and all regulate the degree in which the health of the patient may suffer. In general, the chief complaint before the tumour is of very great bulk, is of its mechanical inconvenience, its weight, the dragging from the loins, the feeling of fulness, and pain in the back produced; but eventually it interferes with and oppresses the functions of various organs, some immediately and others by sympathy, and if relief be not afforded, or be given too late, the patient sinks. One of the most troublesome concomitants is irritability of the stomach, constant and exhausting vomiting, only relievable by diminishing the swelling. The bowels are also often rendered irregular in their action; obstruction or local congestion may be produced by pressure; or irritation may set up diarrhœa; the kidneys, by the pressure, secrete less than they ought, may suffer congestion, and become a prey to organic disease. When the cyst presses chiefly upwards, it interferes especially with the action of the diaphragm, causes irregular action of the heart, and renders the breathing short and difficult.

From these extended and injurious effects of the ovarian tumour, the almost constant marasmus and exhaustion seen in the last stages are explicable; as also the irritative of hectic

fever towards the close of life. Among other results of the progress of the disease are œdema of the lower extremities, and less frequently ascites.

Dr. Burns presents (*Midwifery*, p. 139) the following sketch of the course of ovarian dropsy:—"In the course of the disease, the patient may have attacks of pain in the belly, with fever, indicating inflammation of part of the tumour, which may terminate in suppuration and produce hectic fever; or the attack may be more acute, causing vomiting, tenderness of the belly, and high fever, proving fatal in a short time: or there may be severe pain lasting for a shorter period, with or without temporary exhaustion, and these paroxysms may be frequently repeated. But in many cases these acute symptoms are absent, and little distress is found until the tumour acquire a size so as to obstruct respiration, and cause a painful sense of distension. By this time the constitution becomes broken, and dropsical effusions are produced. Then the abdominal coverings are sometimes so tender that they cannot bear pressure; and the emaciated patient, worn out with restless nights, feverishness and want of appetite, pain and dyspnœa, expires."

There is a remarkable difference in the toleration—so to speak—of the malady in different women. In some, the functional disturbances are early and excessive when the tumour is still of no great magnitude; whilst in others, the lesser mechanical effects of the swelling are almost alone complained of until an extensive enlargement of the cyst—after, it may be, a long period—has occurred. Cases are recorded of tumours, with contents, weighing from 50 to 120lbs., and even upwards and others where their weight has been such as to drag down the distended abdomen to a level with the knees. This variety in tolerance will much depend on the varied nervous impressibility of women, although the state of the general health, the rate of the growth of the tumour, its nature and contents, must have considerable influence. Another circumstance likewise has much influence; viz., the occurrence of inflammation about the cyst, and still more, if this extend to the peritoneum. But inflammatory action going on within secondary cysts may afford no certain signs.

In place of the dropsical enlargement progressing to the destruction of life by mechanical interference with important functions of the thoracic and abdominal viscera, other events may ensue. The tumour may disappear by evacuating itself by rupture through some organ, or, as some believe, by spontaneous absorption. "Dr. Baillie mentions an instance of the spontaneous disappearance of a tumour, after it had existed thirty years, the patient remaining subsequently in good health." (Copland, *loc. cit.*) Although not a solitary example, this is, however, a rare one. A singular instance of the progressive wasting of an ovarian sac occurred to Mr. Norman, of Bath (*Provincial Medical and Surgical Journal,* No. 1, 1851, p. 7), in a patient on whom ovariotomy had been attempted, but was not carried out on account of extensive adhesions. A small quantity of discharge escaped from the wound, "but too small to admit of supposing it came from the tumour," and Mr. Norman observes, that to account for the very great and progressing diminution of size must be a matter only of conjecture. Since the publication of the case, I have heard from that gentleman that the woman is quite well, is married, but has not become pregnant. In the paper quoted, Mr. Norman also records the spontaneous disappearance of ovarian tumours in several cases known to him and to friends; and he seems to regard such a termination as more common than generally supposed. Kiwisch alludes to similar instances, where rupture, followed by reaccumulation two or three times, has led to a permanent cure. In one case there was a recurrence after two years of perfect health, which, after evacuation through the rectum, soon terminated in re-convalescence. In a second case the relapse took place four times in five months, followed by a perfect cure.

The bursting of a cyst is not uncommon, but it often hastens on the fatal termination. The danger, nevertheless, depends much on the outlet through which the fluid makes its way; and this will be regulated by the seat of the previous adhesions of the walls of the cyst, by the relative thickness of those walls, and the changes in structure and strength that the inflammatory process may have effected in them, and, in fine,

by the direction of least resistance. For the tendency to burst may be determined not simply by the over-distension of the cyst, or by mechanical pressure of injury, but also by a weakening of some part of the wall of a cyst, through a morbid process, such as inflammatory softening, or by other cause. It is not very uncommon for a sac, after being once punctured by a trocar, to again and again empty itself through the same outlet, the adhesions of which are dissolved by the pressure of re-accumulated liquid. Such a case I have put on record in the *Lancet* (Case 2, vol. i. 1849).

An ovarian cyst may empty itself into the peritoneal cavity, into the large intestines, the rectum, the bladder, or the vagina, through the Fallopian tube, or externally through the abdominal wall. The discharge into the peritoneum is, of these several modes, the most dangerous; though, I believe, less so than generally imagined. The peril will vary according to the character of the escaped fluid; it will be the less when that fluid is bland and non-irritating, and the greater when it is mixed with the products of diseased action within the interior of the cyst. Sufficiently numerous cases of recovery are known to forbid a necessary fatal prognosis when the contents of an ovarian cyst are effused within the peritoneum; the fluid may be absorbed, and the peritonitis lighted up be mild and readily subdued, and even the yet more gratifying result ensue of the destruction of the cyst itself by obliteration. Indeed, in the operation, hereafter detailed, of cutting out a portion of the cyst and returning the remainder into the abdominal cavity, the subsequent secretion of fluid and its effusion into the peritoneal cavity are even contemplated as parts of the procedure.

Dr. Blundell, in his *Lectures on Midwifery*, adduces an instance of recovery from rupture of a cyst into the peritoneum. Dr. Simpson, of Edinburgh, states (*The Monthly Journal of Medical Science*, vol. xv. p. 527, 1852) that he has seen several cases, and narrates one.

Many examples of rupture through one of the mucous canals are recorded. In one of my cases, published in the *Lancet* (vol. i. 1849), the tumour, it would seem, ruptured in-

ternally three times; and on the last occasion discharged its contents through the urinary passages. Dr. Seymour mentions one where the fluid escaped by the vagina and intestines at the same time, and the patient recovered. Dr. Simpson gives (*loc. cit.*) the history of a patient in whom the cyst ruptured from time to time, and emptied itself *per vaginam;* and he afterwards refers to the rare communication of the interior of an ovarian sac through a Fallopian tube with the interior of the uterus. Dr. Copland (*Medical Dictionary*, vol. i. p. 655) says he saw a case "in which adhesion of the tumour took place to the parts adjoining the puncture by which its contents had been drawn off. The cicatrix ulcerated, and the fluid was afterwards discharged by degrees through the opening, and the patient recovered."

The issue of the cystic contents through a mucous canal, or through the external parietes, is much more favourable than into the peritoneum, and not attended by any such immediate danger to life. If the sac can collapse, a natural cure may result forthwith; if not, it may shrink, and though continuing to secrete for some time, may ultimately wither; or, again, it may expand with fluid as much as before, discharging it at intervals, or almost constantly. The result will much depend on the size and nature of the opening, as well as on the collapsibility of the sac, and on the exclusion or admission of air into its interior. The destruction of a sac with dense thick walls may likewise follow from suppuration established in them after its evacuation.

The following case of ruptured cyst, narrated by Dr. Simpson (*Monthly Journal of Medical Science*, vol. xv. p. 528), is sufficiently remarkable to justify its insertion:—"A patient, now aged 56, the mother of five children, and naturally of a very robust and strong constitution, had up to the end of last year been tapped for ovarian dropsy forty-four times by myself and others. Latterly the paracentesis was required every few weeks, and an enormous amount of fluid was always evacuated. I have repeatedly seen above four gallons of fluid drawn off at a single tapping. Last winter, this patient slipped in walking upon a frozen path, and so violently struck

the abdomen and ovarian tumour against the ground in her fall as to rupture the cyst. Since that time, however, no new tapping has been required. The abdominal swelling, though still large, is considerably less than it was at the time of the fall, and does not increase in size. For a time the fluid of the cyst evidently escaped freely into the cavity of the peritoneum, and was as regularly absorbed from it. Latterly there has been apparently much less, or indeed, no perceptible amount of fluid in the cavity of the peritoneum. For several months the patient's skin was in an almost constant state of diaphoresis—a result which, to her, appeared the more strange, as for years previously she had never been able to excite any perceptible degree of perspiration. This tendency to spontaneous diaphoresis has latterly increased. The urinary secretion was often previously affected and greatly diminished as the ovarian tumour enlarged. Since the fall and rupture of the cyst, the kidneys have continued to act very freely and uninterruptedly, the urine secreted being now always clear and limpid."

An extraordinary case, where death resulted from the twisting on itself of the pedicle of an ovarian sac, is related in the *New York Journal of Medicine*, for March, 1851. The twisted pedicle appeared to have caused the fatal peritonitis. The tumour internally was intensely congested.

M. Richard, of Paris, cites (*Medico-Chirurgical Review*, 1854, p. 465) four examples of cysts, simply ovarian in origin, which "had involved a considerable portion of the Fallopian tube, through which their contents could by pressure be forced into the uterus. The portion of tube implicated had become much increased in length and thickness, and the folds of its mucous membrane, which are so numerous and resistant, were partly effaced. A distinctly formed aperture was the means of communication between the ovarian cyst and the tube, through which the contents of the former could be forced. Although, however, the portion of the tube which remained in its normal state offered no physical obstacle to the further passage of the fluid, this only passed out, even in small quantities, when a probe was introduced and pressure was applied, the latter alone not sufficing. M. Richard believes that some of the cases

described as tubar dropsies have been in reality examples of this occurrence (which he calls tubo-ovarian), and that in this way may be explained the course and disappearance of some encysted abdominal tumours."

Another termination of ovarian cysts is by metamorphosis of their walls. "This is most marked (as Kiwisch observes, *Op. cit.* p. 120) when ossification takes place, which always causes a considerable contraction of the walls, and diminution of the cavity of the cysts. When ossification is perfect, it undergoes no further enlargement. Partial deposits of osseous and cartilaginous masses and other hypertrophies take place simultaneously with the shrivelling of the walls, especially in aged individuals."

The chances of spontaneous cure after any of the modes of termination of ovarian cysts are less for the compound than for the simple sacs. "The most favourable and perfect cure, as well after spontaneous effusions as after tapping, is when an inflammatory process attacks the evacuated cysts and leads to degenerations, and produces such a metamorphosis in the still undischarged contiguous cysts, that a gradual absorption of the exuded contents, and with it shrivelling of the whole tumour follows. According to an observation this event is not rare in small cysts, and the result is sometimes so favourable that the patients in a tolerably short time after perforation has taken place, may be considered perfectly cured." (Kiwisch, p. 198.)

Before proceeding with the account of the diagnosis of encysted dropsy of the ovary, I will briefly describe the pathology of other ovarian tumours—viz., of *hydatid, dermoid,* and *colloid* growths, and will say a few words respecting malignant disease of the ovary and dropsy of the Fallopian tubes. Under the heading of "Compound Cysts of the Ovaries," Kiwisch indeed comprehends the description of cystoid degeneration, or the multilocular ovarian dropsy already considered, and that of alveolar degeneration or colloid, and cysto-sarcoma and cystoid cancer; because, as he says, those degenerations of the ovaries severally consist principally of great cavities filled with fluid.

Hydatid ovarian cysts are very rare. The hydatid cells are

enveloped by sacs developed from the tissue of the ovary. Their rarity renders them pathological curiosities of little practical importance.

Dermoid ovarian tumours are such as contain solid organized matters, such as hair, fatty matter, bones and teeth. I have already (p. 276) alluded to them as complicating the ordinary cystic growths, compared with which they are very uncommon. Dr. Farre has given a very excellent description of these tumours, and a critical inquiry relative to their origin, in his before-quoted article on the abnormal anatomy of the ovary (*Cyclopædia of Anatomy*, p. 584), to which I would refer the reader desirous of further information respecting them than can be given in this volume. "They rarely grow [writes Dr. Farre] with the rapidity, or attain the enormous bulk commonly observed in those with fluid or hydatid contents. That such cysts may, however, sometimes equal in size those of a more simple character, is shown by a remarkable example described by Blumenbach. These cysts are of a tegumentary character: upon their inner surface is produced a growth of skin, with its layer of cutis, subcutaneous fat, epidermis, and all the minute appended organs (*e.g.* sebaceous and sudoriparous glands) of the proper hairy integument of the body; whence the term 'dermoid cysts.'" As to the origin and connexion of these cysts with supposed ovarian conception and gestation, Dr. Farre, after a rigorous examination of recorded cases and of specimens, concludes that evidence is wanting to show that they, considered as embryonic growths, are developed within the proper structure of the ovary.

Colloid ovarian tumours, otherwise described as alveolar degeneration or cancer of the ovary, are of more practical importance than the last two varieties mentioned. They are generally attended by a cyst development, but not necessarily so; and thus stand midway between the purely ovarian cystic disease and the more solid tumours of the ovary, having a cancerous or cancroid character. The term "alveolar degeneration" represents the general appearance of the altered ovary, the substance of which is permeated throughout, and often very largely extended, by interspaces or cavities (alveoli), some-

thing after the manner of sponge, only that, in many instances, these cavities attain a size equal to the larger cysts in follicular degeneration of the organ. So, again, the term "colloid" is intended to signify the character of the contents of the alveoli or sacs, which have some resemblance to liquid glue or soft jelly, and though sometimes colourless, are oftener of a yellowish, reddish-yellow, or yellow-green colour.

The alveoli or cellular spaces are not the result of follicular dilatation, for the Graafian vesicles appear to be destroyed by their abnormal development; and their probable origin is in the connective or areolar tissue of the ovary.

The walls of the sacs consist of fibrous tissue, and vary extremely in thickness; at one time the cavities appearing merely hollowed out in a dense fibrous mass, at another as a congeries of thin walled cysts, when the whole mass (as Dr. Farre remarks, *Op. cit.* 592) is so feebly supported as to assume the appearance of a trembling jelly. According to the number and size of large sacs within the tumour, and their position relatively to its surface, its outline is smooth and regular, or presents several irregularities of varying dimensions.

"Imbedded in the jelly-like substance of the alveolar contents may be found opaque white masses resembling blancmange or thick cream. Intermixed with these contents in varying proportions are found nucleated epithelial cells, oval corpuscles, oil granules and molecules, and delicate filaments. Besides these contents there may be often observed hanging into the interior of the alveoli, and sprouting from their walls, clusters of leaf-like clavate or villous processes, such as are observed in that variety which has more particularly received the name of villous cancer. But it frequently happens that the alveolar type of structure is not generally diffused through the mass. This may form only a small portion of the diseased ovary, whilst the greater part is composed of one or more large cysts, with contents similar to those just described." (*Farre*, p. 593.)

This colloid degeneration is capable of more rapid growth than the follicular, and unlike the latter, not very uncommonly becomes the seat of actual malignant disease. Yet it will often attain an enormous development, equal to that of a cystic

tumour, and may disturb in an equally slight degree the general health of a patient. Like follicular tumours, moreover, it contracts adhesions with surrounding viscera, and its contained sacs often coalesce by the breaking down of their interposed septa, an event easily brought about by the sometimes excessive rapidity of growth, and by the spongy and probably delicate constitution of the partition walls themselves.

Cysto-sarcoma is probably to be rightly numbered with the forms of "cancroid" disease, as understood by Dr. Hughes Bennett. At times, however, it appears "innocent" as contrasted with malignant, and as it affects the ovary, produces a more or less solid tumour, or oftener one so hollowed out by sacs or cells as in a considerable degree to resemble, in general features, some cases of compound follicular degeneration. When affected, the whole structure of the ovary becomes involved, there is an abnormal development of areolar and fibrous tissue, and the cysts arising in its interior assume a lining of epithelium and the power of forming secondary cysts.

The growth of these sarcomatous tumours is at times very rapid, and they may acquire dimensions equal to those of the very largest encysted growths. The contents of the sacs vary both in different ovaries and in different cysts of the same ovary. For instance, they may be "colloid," or serous, or purulent, or sanguineous.

Cancerous Disease of Ovary.—Cysto-sarcoma is liable to be complicated with cancerous disease, the medullary matter appearing in several of its cysts. Where the whole ovary is the seat of cancerous disease, and withal is hollowed out into cysts, it constitutes the "cystoid cancer" of Kiwisch. According to this pathologist, "occasionally it may happen that cavities of different sizes, or even isolated cysts, may be formed in a primitive principally medullary cancer, which at one time may grow to a very large size with the most diversified forms; while at another time, a malignant cancer may be developed in a cyst formation or an alveolar degeneration. It sometimes happens that a large, solid, cancerous mass liquefies in its centre, and is gradually changed into a fluctuating tumour, which, in an anatomical point of view, cannot properly be considered as

belonging to 'cystoid cancer.'" Except when complicating one or other form of follicular or cystoid degeneration, cancerous disease of the ovary rarely gives rise to tumours of very considerable size, or to such as assimilate themselves to encysted ovarian dropsy. Malignant ovarian disease has, therefore, little claim on our attention in this chapter; and I shall, after a few more remarks, dismiss it from consideration until the question of diagnosis comes before us.

Cancer does not invade the ovary so frequently as was formerly supposed, when many dense or cystic fibrous growths were mistaken for it. It is less often met with than colloid disease. Medullary cancer is the most frequent variety of malignant disease. "It may occur [writes Dr. Farre, *Op. cit.* p. 593] either in the form of a general infiltration of the entire ovary with encephaloid matter, or in that of distinct tumours, bounded by a fibrous envelope, and having the carcinomatous matter distributed through an interior cellular substance, or confined there by cellular septa." (This latter variety is equivalent to the 'cystoid cancer' of Kiwisch.) "These tumours may attain the size of an orange or more. Their growth appears to be, in the first instance, repressed by their fibrous sheaths, but these occasionally burst, and allow of the diffusion of their contents. This form of cancer often affects both ovaries together, and is found associated with cancer in other, and especially adjacent parts. Notwithstanding the number and variety of the contiguous structures which may be thus involved, the ovary may sometimes be traced as the centre or focus from which the cancerous deposit has spread."

The black-coloured or melanoid variety of medullary cancer is very uncommon, and scirrhous disease is the same. Dr. Hughes Bennett, in his *Treatise on Cancerous and Cancroid Growths*, has entered into these matters in much more detail, and has especially called attention to what he terms cancroid disease of the ovary, to the account of which I would refer the reader.

"Cancer of the ovaries [says Kiwisch, *Op. cit.* p. 243], with the exception of childhood, spares no period of life, and it is not rare in the prime of life; but medullary cancer occurs in young persons exclusively, particularly with alveolar softening of the

tissue. The fibrous cancer, on the other hand, belongs chiefly to the advanced periods of life. We have besides to observe, that ovarian cancer breaks out much earlier than uterine; for whilst, in a great number of uterine cancers, we have as yet seen none developed before the age of twenty-four years, we have observed very extensive ovarian cancer in a girl of seventeen. However, the frequency of ovarian cancer compared with the uterine, if we except the secondary forms which proceed from the latter affection, is not so considerable; and according to our observations, we may assume that of every five cases of primitive uterine cancer there occurs one case of primitive ovarian cancer. But among the solid tumours cancer and adipose cysts are the most frequently occurring forms of disease. It is, however, to be remarked that medullary cancer, in all its stages, occurs even in an advanced stage."

Dropsy of the Fallopian Tube, or Oviduct.—This condition is seldom met with, but as very closely simulating encysted dropsy of the ovary, deserves mention in this place. It results from an abnormal secretion within the tube, coupled with occlusion of its orifices, and the consequent accumulation of fluid, distension, and increase of the abnormally formed sac. The distal end, being thinner as well as larger, expands most, and forms a globular tumour at the end of a tortuous sac. At the angles, Dr. Farre tells us (*Op. cit.* p. 619), valvular projections form imperfect internal septa, and by the distension closure of the tube the mucous membrane is replaced by an exhalant serous surface. This dropsical condition may be met with in both Fallopian tubes at the same time. The contained fluid is usually clear and nearly colourless, and contains little albumen. However, cases occur where it is mixed with flocculi of lymph, or is thickened and altered by admixture with mucus, purulent matter, and blood; the last imparting to it the same coffee-ground colour as it does in ovarian sacs.

The quantity of fluid accumulated mostly does not exceed a few ounces, but instances are recorded where 7, 13, and even upwards of 100 lbs. have been found. Dr. Farre doubts the accuracy of observation in these extreme cases; for he cannot suppose the tube capable of the requisite distension, bearing in mind the

history of tubal pregnancy, which always terminates by rupture of the tube before the middle period of gestation. To explain these recorded cases he presumes "that a part of the fluid was contained in the ovary; for a concomitant enlargement of both tube and ovary is a very uncommon occurrence."

Diagnosis of Ovarian Dropsy.

Encysted dropsy of the ovary has been mistaken for pregnancy, and pregnancy for ovarian dropsy; the latter a much more serious error, as it may lead to fatal treatment. Ascites, tumours of the uterus, distension of the bladder, fæcal and flatulent accumulations in the intestines, and indeed almost every kind of enlarged abdomen, have been confounded with ovarian disease; and, conversely, the last has been mistaken for each and all of these conditions. Such errors have occurred to distinguished practitioners; and it must be admitted that the diagnosis is often as difficult as it manifestly is important. Its importance, indeed, can scarcely be exaggerated; for whatever be the treatment, the knowledge not only of the existence, but also of the precise nature of the ovarian malady, is of the utmost consequence.

Signs of Ovarian Dropsy.—The signs of ovarian dropsy may be divided into *general* and *special*, or *local*. They will, moreover, vary according to the stage of the disease.

General Signs.—The *general* are evidenced by the condition of the patient's health and appearance; and taken in conjunction with signs of abdominal enlargement, are confirmatory of its real nature. Among such general signs in the fully developed disease, are, emaciation about the neck and shoulders, and a peculiar expression of countenance. The latter is more readily appreciable to the observer than any description can make it to the reader:—The face is elongated, thin, and rather shrivelled; anxiety and care are strongly depicted on the features; the angles of the nose and mouth are drawn downwards, the lips thinned, the cheeks furrowed; the eyes are remarkably defined, the space between the eyelids and bony margin of the orbits being sunken and hollow; indeed, the whole areolar adipose tissue of the face is atrophied; the complexion is pale, but without that peculiar leaden aspect, or

sallow or parchment-like colour seen in malignant disease. It is mostly not till late in the disease that œdema of the extremities is noticeable, that the abdominal veins become prominent, or that the derangement of the digestive organs, or the decreased quantity of urine, is considerable. Sometimes, indeed, œdema happens at an early stage, owing to pressure on the veins of the leg, and is, consequently, seen on the side from which the tumour originates. It is, therefore, at once distinguishable from that œdema having a general cause.

Negative signs are deducible from the absence of symptoms of cardiac or of renal disease; for in ovarian dropsy there is little disturbance of the circulation; and it is only when distension is very great that respiration is much embarrassed.

Disorders of the compressed viscera, and impaired nutrition and consequent wasting, are among the signs of advanced ovarian disease.

As implied in the first paragraph, these general signs are apparent mainly where the disease has so far progressed as to exhibit itself by an abdominal enlargement; for where the enlarged ovary has not yet emerged from the pelvis, the symptoms, except some of the sympathetic character, are local and special.

Of the few general signs dependent on sympathy, are, enlarged and painful breasts, surrounded by an areola, often secreting a milky fluid, and at times even morning sickness.

Special and Local Signs.—The *special* and *local* signs of ovarian dropsy are to be gathered from the patient's account, from inspection, palpation, and percussion of the abdomen, from change of position, and by vaginal and rectal examination.

These signs vary considerably, according as the tumour occupies the pelvis or the abdomen; just as in the case of the impregnated uterus. In estimating the diagnostic value of symptoms, we must bear in mind that encysted dropsy is an advancing disease, and that, *cæteris paribus*, the larger the tumour the more difficult the diagnosis. Before attempting a manual examination of any sort, the bowels and bladder ought to be emptied.

Local Signs in Early Stage.—The cyst, while still in the

pelvis, is attended by not a few of the symptoms of early pregnancy, and frequently gives rise to the belief of its existence. I have mentioned the sympathetic enlargement, pain, and secretion of the breasts, the appearance of an areola, and the occasional occurrence of morning sickness. The patient has besides a feeling of weight and fulness in the pelvic cavity, and the menses are not unfrequently suppressed, though in the majority of cases they are only irregular. In the course of its growth the sac is apt to press on the rectum, impede the passage of the fæces, and so to cause distension of the intestines above, and enlarged veins or piles about the anus. The pressure may likewise compress the neck of the bladder, and prevent the escape of urine; or, again, may cause some degree of displacement of the uterus. Such symptoms may concur or otherwise be met with separately.

But the most certain evidence of a cyst in the pelvis is to be obtained by a vaginal and rectal examination. To effect this, the patient should be placed on her back with the thighs flexed on the abdomen, so as to relax the muscles, and she should be directed *not* to hold her breath. The finger being introduced into the vagina or rectum, feels an enlargement in the iliac fossa, low down about the ovary, occupying the pouch between the vagina and rectum. It is a still better plan to introduce the thumb into the rectum and the middle finger into the vagina, when an elastic tumour of a rounded figure is felt interposed between them, and fluctuation in it may be ascertained if the sac be large enough and the walls not too thick, as in general they are not in this stage. Such a tumour is not very painful on pressure, and not immovable like the non-ovarian solid or sanguineous tumours developed in the areolar tissue of the recto-vaginal pouch. The vagina is generally found to be drawn upwards, and the uterus raised, or thrown backward towards the rectum, or bent forwards, or pushed to one side—the opposite to that from which the tumour springs. "If," says Dr. Churchill (*On the Diseases of Women*—1850), "the finger be introduced into the rectum past the tumour, we shall find the fundus uteri, and be able to distinguish it from the enlarged ovary. This is very necessary, or we might

conclude the case to be retroversion of the womb. In addition, it may perhaps enable us to decide whether one or both ovaries be diseased."

"There are three characteristics," says Dr. Blundell (*On the Diseases of Women*, p. 108), "by which recto-vaginal dropsy of the ovary may be known; a tumour within the cavity of the pelvis, with the vagina in front, and the rectum posteriorly; a fluctuation more or less palpable, and an assemblage of symptoms, more numerous in some cases, of smaller number in others, but most of them referrible to irritation, obstruction, and compression of the viscera within the pelvis."

It should be remembered that a hernia may descend between the vagina and rectum, and feel like a tumour in that region; but in the absence of symptoms of strangulation we must distinguish it from an ovarian cyst by the effects of coughing, and of change of posture, and by being unable to pass the finger beyond the tumour. Again, the ovary itself, though free from cystic disease, may descend into the same space; in which case, however, examination causes uneasiness, and pressure severe pain.

A cyst of the ovary may, owing to arrest of, or to extremely slow development, remain in the pelvis for many months, or even for years. In general, however, it gradually increases, and, retaining for a time its rounded outline and unilateral position, ascends from the pelvic to the abdominal cavity in front of the bowels, covered by the peritoneum. Now it is that it produces the abdominal enlargement and distension, and in its continuous growth thrusts upward the diaphragm and liver, thereby lessening the thoracic cavity, and compresses the stomach, spleen, and kidneys. Hence follows a train of new symptoms referrible to the effects of the tumour in its new position on the several organs it comes into relation with; but I have at present only to deal with those signs—special and local—applicable to diagnosis.

Special Signs of Cyst when in Abdomen.—Inspection.—When an ovarian sac emerges from the pelvic into the abdominal cavity, the enlargement is first seen about the iliac region of one side, and as it increases, this unilateral pre-

ponderance remains visible mostly for a very long period. Ultimately the excessive distension of the abdominal wall, or the development of fresh cysts towards the opposite side of the body, obliterates this diagnostic sign of unequal enlargement on the sides of the abdomen.

To test the disparity in size of the two sides of the abdomen, we may moreover have recourse to actual measurement; although the difference is generally too slight to render this proceeding of much value. Just as in pregnancy, the distension renders the umbilicus prominent. We likewise see that the abdominal veins are enlarged and apparently more numerous; those of the legs also are oftentimes so in bad cases, and attended by œdema. The growing tumour within the pelvis, as already noticed, and still more on its emergence from it, involves displacement and certain changes of the pelvic viscera. Commencing, as the tumour mostly does, in the recto-vaginal pouch, its tendency is to thrust the uterus forwards; a tendency which necessarily goes on increasing as the sac rises upwards towards the abdomen. Hence there is anteversion of the uterus, sometimes so much that this organ is pressed against the symphysis pubis. At other times, however, the pressure is more lateral, and then the womb is pressed forward and to the side opposite to that on which the cyst grows, and assumes an oblique position. The pushing upward and forward of the uterus involves also a stretching of the vagina in the same direction, and often also an attenuation and lengthening of the womb itself. The result of the uterine displacement upwards and forwards and the consequent stretching of the vagina, is, that the os uteri is found, on a vaginal examination, higher up than usual, to be rather dilated and to have a shortened cervix.

In the after-growth of the tumour within the abdomen, and by its tendency to extend upwards and forwards to the abdominal wall, the relations between it and the uterus become reversed, so that the later lies below and more or less behind the bulk of the enlarged cyst; and it eventually comes to pass that the thrust of the tumour, when occupying most of the abdominal space, upon the uterus, the vagina and the

rectum, is downwards, so much so as often to cause prolapse of those parts.

Whilst still within the pelvis, the ovarian cyst may, as already mentioned, cause difficult and painful micturition by compression of the urethra; but when the tumour rises out of the pelvis this compression and its consequences, together with the feeling of weight and distension in that region, disappear, and may in their turn be replaced by incontinence, or even by partial suppression of urine and by varicose veins and dropsy of the extremities. The incontinence proceeds from pressure upon, and frequent displacement of, the bladder to some extent, whilst the possible partial suppression of urine is the result of pressure upon one or both ureters; a consequence, however, not likely to occur except where there is a dense tumour which has contracted adhesions posteriorly. It is under similar conditions that we meet with varicose veins and œdema of the extremities; for in the majority of cases, even large tumours appear to interfere little with the circulation to and from the lower limbs.

Percussion.—The growth of the sac renders fluctuation more distinct on percussion: the tympanitic sound of the intestines is heard more or less on one side the tumour, and a dull sound over the tumour, varying according to its dimensions, but having its limits generally well defined, and only slightly modified by change of posture. Unlike what happens in ascites, the more complete dulness of ovarian dropsy occupies the most prominent part of the swelling; whilst over the superior and lateral regions, especially on the healthy side, the clear intestinal sound will be recognised, and the want of resonance in the tumour can be distinctly traced into the pelvis. The fluctuation is more resistant than in ascites; and the hydrostatic line of level, so characteristic of the latter disease, is never found.

By *palpation*, the character of the wall of the cyst may be made out, whether smooth and even, or irregular and tuberose. A compound may often be distinguished from the unilocular or simple sac by its inferior and less extensive degree of fluctuation, and better still by its unequal surface and con-

sistence; for mostly the additional cysts are less developed, and so feel solid or nearly so, or they have denser and less fluctuating contents, and are smaller. The distinction on these grounds will be more readily made where the new cysts are developed externally to the old one, as offshoots from it.

A vaginal or rectal examination will often discover supplementary cysts, not detected from the exterior of the abdomen, and afford us other valuable information respecting the condition and relations or adhesions of the sac.

The uterine sound supplies another means of diagnosis; but I will defer an account of its use to a subsequent page.

Recapitulation.—To recapitulate:—When with a slowly increasing abdominal tumour, there are such general signs as emaciation, sunken or contracted features; the absence of marked œdema of the legs, of the special symptoms of ascites, or of those organic lesions productive of it; of any notable impairment of the patient's activity; of any great deterioration of the functions of life, and of the characteristic signs of pregnancy, we may suspect ovarian dropsy to exist. When percussion reveals fluctuation, and in every change of posture the fluid is detected at the most prominent part of the tumour, whilst the intestinal sound is present only on the sides and the dull sound extends into the pelvis, ovarian dropsy may be more than suspected, it may be presumed to exist.

When in an earlier stage an examination *per vaginam et rectum* discovers an elastic tumour in the recto-vaginal pouch, loose in position, and probably distinctly fluctuating, without the presence of the symptoms of hernia, or of the pain of a prolapsed ovary, then we may be almost certain that it is a dropsical ovarian cyst, and by watching, the progressive increase of the tumour strengthens the conviction. Likewise it should be remembered that, when there is only one cyst, the tumour is generally more perceptible on one side the body, and its surface feels more equal; but that when there is a compound cyst, the unilateral character of the tumour is liable to be lost, the symptoms to be more or less obscured, and the fluctuation less distinct.

Lastly, we must ever bear in mind the many deranged con-

ditions of organs and functions which may be and have been confounded with encysted dropsy, and which I shall presently describe *seriatim*.

Microscopical Diagnosis.—When the existence of cystic disease of the ovarium has been made out, it has been hoped to gain some more intimate knowledge of the nature and condition of the cysts by means of a microscopic examination of the fluid withdrawn by tapping. Dr. J. Hughes Bennett, in a paper on *Ovarian Disease*, published in the *Edinburgh Medical and Surgical Journal* (vol. lxv., 1846), expresses an opinion that such examination is of great value, and seems disposed to rely, to a very considerable extent, upon the indications so derived. He thus writes: "There can be little danger of our confounding the fluid accompanying encysted ovarian dropsy with that found in inflammatory or passive dropsies. In peritonitis we find primitive filaments mixed with plastic or pus corpuscles, which can never be mistaken for the large epithelial cells observed in the fluid of ovarian dropsy. In accumulations of fluid caused by diseased liver, I have not detected, when uncombined with inflammation, any structures whatever."

In the above remarks Dr. Bennett appears to lose sight of the frequent occurrence of inflammatory products in ovarian cysts, both of exudation and of pus corpuscles.

A few years ago I gave, in conjunction with my friend, Mr. Nunn, considerable attention to this point, and am indebted to that gentleman for the following able *resumé*. In the conclusions arrived at I entirely agree.

Mr. Nunn thus proceeds:—"The fact that fluid withdrawn from the cavity of the abdomen by the operation of paracentesis, may be, in one instance, the result of transudation of the serous part of the blood, in consequence of obstructed portal circulation; in another, the product of inflammatory action of the peritoneum; in another, a part of the contents of an hydatid; and in another, the distending secretion of an ovarian cyst, might lead one to conceive the characteristics of each of these different fluids would be such as would enable one to decide at once upon the source from which each was derived; and that, therefore, the nature of the fluid would be diagnostic of the

disease which gave rise to its production. In the present state of our knowledge I do not think we are justified in asserting that such is the case. What I believe to be the value of a microscopical examination of the fluid is, that it may serve to strengthen an opinion; but, alone, it ought not to decide one. As an illustration of what I mean, I would instance a somewhat analogous example: the presence of the prismatic crystals of the triple phosphate in the urine indicates the existence of a morbid condition, that may be either a local disease or a general disorder; a knowledge of the other symptoms is required before it can be determined which of the two maladies is present; to be in possession of the fact of there being that peculiar deposit in the urine is, notwithstanding, of great importance.

"We must take into consideration these two points:—

"First. What does the microscope reveal that is peculiar in fluid of an ovarian cyst?

"Second. What are the fallacies to which a diagnosis, founded upon a microscopic examination of the fluid, is obnoxious?

"In respect of the first of these questions, I am inclined to say, as the result of many examinations of different specimens of ovarian fluid, that the most constant characteristic of such fluid is its containing, in greater or less abundance, cells gorged with granules; and, in addition, circumambient granules having the same measurements as those encompassed by the cell wall. At one time I considered the size of these granules (if they can properly be so called) was constant; but subsequent observations have convinced me of the incorrectness of this conclusion—the size of the gorged cells and of the granules varies greatly even in the fluids from different cysts of the same ovary.

"With regard to the second question, I would urge, in the first place, that the phenomena of cell growth are at best but imperfectly investigated, especially as bearing upon the physiology of cells which owe their existence to a morbid action; and that besides this, under certain circumstances, the ovarian fluid may not be contained within a cyst, as, for instance, where the cyst has been at some time or other ruptured, but may be mingled with peritonitic effusion, or the ordinary fluid of ascites; and, more-

over, we must recollect that lymph and pus are not uncommonly found within an ovarian cyst."

Exploring Needles.—Dr. Simpson has suggested, as further aids to diagnosis, the use of the uterine sound, and of the exploring needle. The latter is nothing more than a very slender silver trocar, with appropriate canula. (*Edinburgh Monthly Journal of Medical Science,* vol. x., 1850, p. 197.) The trocar is tipped with a very short steel point; and the tube of the canula is open at one side for nearly an inch from its extremity, so as to admit more easily of the escape, through the canal of the tube, of any fluid in which its point may be placed. Sometimes the application of an exhausting syringe to the outer end of the instrument is desirable, in order to produce the flow along its tube of any more viscid fluid. Dr. Simpson introduces these exploring needles to determine the solid or cystic character of a tumour, and by withdrawing fluid where present, to obtain diagnostic signs by the microscope. This plan of exploration I almost invariably employ, but find a very small trocar answer every purpose.

Diagnostic Value of the Uterine Sound.—Dr. Simpson proposed the use of the uterine sound in 1843 (*Edinburgh Monthly Journal,* 1843, p. 701), and its applicability in the diagnosis of pelvic tumours has been acknowledged by various eminent practitioners.

I have found this instrument especially useful in deciding the diagnosis between fibrous tumours of the uterus and ovarian dropsy; a matter of much importance, and frequently of great difficulty. I should be sorry to encourage an indiscriminate use of the sound in uterine disease; for it will be but seldom wanted to distinguish between most maladies, and as injury may be easily inflicted by it, its introduction should be made with great care.

In the excellent essay referred to, Dr. Simpson has chiefly pointed out the utility of the sound, or bougie, in distinguishing a uterine from a non-uterine tumour. He thus proceeds:—"In other instances, where the tumour is not uterine, we have repeatedly made ourselves and others certain of the fact, by first introducing the bougie, and so far giving us at once a knowledge

of the exact position of the uterus, and a control over its movements, and then proceeding in one of three ways—1. The uterus may be retained in its situation with the bougie, and then, by the assistance of the hand above the pubis, or by some fingers in the vagina, the tumour, if unattached to the uterine tissues, may be moved away from the fixed uterus. 2. The tumour being left in its situation, it may be possible to move away the uterus from it to such a degree as to show them to be unconnected. Or, 3. Instead of keeping the uterus fixed, and moving the tumour, or fixing the tumour and moving the uterus, both may be moved simultaneously; the uterus by the bougie, and the tumour by the hand or fingers, to opposite sides of the pelvis, to such an extent as to give still more conclusive evidence of the same fact."

Again, as the same writer observes, the ovary normally lies behind the uterus, being attached to the *posterior* surface of the broad ligament; hence an ovarian tumour will occupy a similar position. Accordingly, if the sound show a tumour in front of the uterus, the disease is certainly not ovarian.

For further valuable hints as to the varied applicability of the sound in diagnosis, I must refer to the original paper from which I have quoted the above remarks.

As Dr. Hughes Bennett observes (*Edinburgh Medical and Surgical Journal*, 1846, p. 404), "In cases of ovarian dropsy the information thus arrived at is negative; but this becomes of immense importance when the question arises (as it always does), is the tumour uterine or ovarian?"

Further on, when alluding to a particular case, he says, "By pushing the uterus from side to side, we are enabled to act upon the ovaries, and to determine by the impulses communicated to the hand, whether the tumour be on the right or left side, and to form a tolerable idea, in certain cases, whether it be free or unattached."

The use of the sound is applicable in every stage of encysted dropsy, but with more advantage in the earlier.

Diagnosis of Adhesions.—Having discovered ovarian dropsy, the question of treatment will be further elucidated by ascertaining, if possible, whether the tumour grows free from a

single pedicle, or is attached by adhesions to the peritoneum or to neighbouring viscera. To determine this, the patient should lie in the horizontal posture, with the thighs flexed, so as to relax the abdominal wall. The endeavour to move the cyst from side to side is first to be made; and if this can be easily done, it proves the absence of adhesions; likewise, if when the hand is placed firmly on the relaxed parietes, these are readily moved over the walls of the cyst, there are no adhesions, at least on the upper and lateral surfaces. Lastly, a third argument against the presence of adhesions is deducible when the abdominal parietes, which are thin in this disease, can be grasped and puckered up, and so moved over the cyst; and when they can be gathered up readily without raising the cyst. If these three indications are met with, we may determine there are no adhesions.

Another plan has been suggested, based on the extent to which the contents of the abdomen are forced downwards during a deep inspiration, by the descent of the diaphragm. If there be no adhesions in front, the upper boundary of the ovarian tumour descends to the extent of an inch during a deep inspiration, the space previously occupied by the tumour being now taken up by the intestines; consequently, if percussion be made over the upper part of the tumour, during ordinary respiration, a dull sound is elicited; but when the patient takes a deep inspiration, an intestinal resonance is there perceptible.

Malignant Disease of the Ovaria.—I have, in a previous page, (p. 291) made some general observations on the pathology of cancerous disease of the ovary; and it now remains for me only to speak of it in relation to diagnosis.

The walls of cancerous ovarian cysts are thick, but unevenly so at different parts, and irregular and knotty on their surface. The same also is true of the false cysts, which sometimes hollow themselves out in the centre of a cancerous mass, whether that be scirrhous, fungoid, or encephaloid.

When an ovary is attacked by malignant disease, the increase of the tumour is more rapid, the pain attending it much greater, often lancinating, the constitution is usually much

more grievously affected, the health and strength quickly destroyed, the functions of the stomach and nutrition seriously impaired, and the complexion sallow; in fine, the system is altogether cachectic. At the same time, enlargement of the abdominal glands, the evidence of cancer in other parts, the unevenness of the abdominal tumour, the thickness and density of its walls and the indistinct or imperceptible fluctuation, afford further evidence of the dreadful disease with which we have to deal.

The concurrence of most or all of the above symptoms renders cancerous ovarian disease not difficult to diagnose. Kiwisch represents the constitutional symptoms as sometimes less pronounced than the foregoing description conveys. He writes (p. 244):—"Even cancer in many cases shows no recognisable peculiarities in the constitution of the patients. At the commencement of the disease particularly, the so-called cancerous cachexy cannot be demonstrated. The latter is not generally observed until, by the progress of the local disease, the mass of the blood has been more or less diminished, and the nervous system drawn into sympathy. But this may also take place in an equal degree in other quick-growing tumours. Accordingly, when individuals appear remarkably cachetic, while there is no considerable cancerous deposit, we must affirm from our own observations this coincidence of symptoms to be accidental." The prognosis, where cancerous disease appears, is necessarily unfavourable; and no treatment, except that to relieve present suffering, is justifiable. Tapping and all active and depressing remedies, must be eschewed.

In a case related before the Medical Society of London, in 1850, by Mr. Nunn, the disease attacked both ovaries, and the female, aged 62, died after several copious discharges of blood from the rectum. "The right ovary presented the greatest evidence of malignity: the left contained within it several cysts; the fluid in each of these cysts differed in its appearance from that in the others. The gorged cells, which are said to be proper to ovarian fluid, were found in all in greater or less abundance. The right ovary was situated higher in the pelvis, and was the most plentifully supplied with blood. The spermatic artery,

entering its upper part, was excessively tortuous. In addition to this, branches from the right colic, superior and middle hæmorrhoidal, epigastric, internal iliac, and uterine arteries, also assisted to feed the tumour; the ureter was involved in the pedicle of this ovary. The uterus was dragged from the centre to the side of the pelvis; and was so placed, that its long axis was directed transversely. It presented, on being laid open, no marks of disease, although malformed by being divided into an upper and lower compartment. The os uteri was perfectly healthy, and had the appearance of belonging to a virgin uterus. The vagina and bladder were quite sound; the rectum about an inch and a half from its lower termination was perforated by a circular opening, large enough to admit three fingers; otherwise this viscus was healthy. The aperture formed the means of communication between the rectum and a highly vascular cancerous lump, situated in front of the rectum, and behind the vagina and uterus. This mass, if it originated in either of the organs referred to, must have occurred in the outer covering, since the mucous lining of all was, with the exception of the aperture mentioned, as sound as it is ever found in persons of advanced age. The cæcum was thrown from its seat in the right iliac fossa in the middle of the belly, not by being displaced by the enlarged ovary, but by means of the tension of the peritoneum. Cancerous deposit was found in the breast, and in several other organs."

I have had several cases of malignant ovarian disease under my own care; two such were patients in St. Mary's Hospital, in whom the cancerous disease enveloped both uterus and intestines, as well as the diseased ovary.

Kiwisch has devoted considerable attention to the diagnosis of malignant and of pseudo-malignant disease of the ovary; and I may be allowed, to borrow some of the conclusions at which he has arrived, and which accord with those accruing from my own experience.

"When a large tumour consists mostly of small cysts, which is particularly the case in less extensive alveolar degenerations, it does not present fluctuation on external percussion, in which case it requires an experienced sense of touch to detect the

nature of the tumour by palpation. In alveolar degenerations and in cysto-sarcoma, fluctuation is also indistinct even in large tumours, in proportion to the thickness of their walls. In both these last forms of disease the lower parts of the tumour, so far as they are accessible through the vaginal floor and the rectum, never fluctuate, but feel dense, elastic, and generally tolerably uniform; in compound cysts, on the contrary, the fluctuation of the different cysts frequently extends downwards into the pelvis."

"The development of the tumour may also furnish some diagnostic data. Thus compound cysts, even when of small size, form bodies which consist of fluctuating cyst cavities, while the alveolar degeneration, the cysto-sarcoma and primitive cystoid cancer always proceed from a solid tumour, and only begin to fluctuate after considerable development. The hardness, too, in the cysto-sarcomas always remains very marked, while the alveolar degenerations always present great elasticity.

Diseases liable to be mistaken for Ovarian Dropsy.—The importance of a right diagnosis, the difficulty in arriving at one, and the ease with which an error may be made, will be my apology for dwelling more at length on this subject than otherwise might be necessary. The principal diseases liable to be mistaken for dropsy of the ovary are,—

1. Retroversion and retroflexion of the uterus.
2. Tumours of the uterus: *a*, solid; *b*, fibro-cystic.
3. Ascites.
4. Pregnancy.
5. Pregnancy, complicated with ovarian dropsy.
6. Cystic tumours of the abdomen.
7. Distended bladder.
8. Accumulation of gas in the intestines.
9. Accumulation of fæces in the intestines.
10. Enlargement of the liver, spleen, or kidney, or tumours connected with these viscera.
11. Recto-vaginal hernia, and displacement of the ovary.
12. Pelvic abscess.

13. Retention of the menstrual fluid from imperforate hymen.
14. Hydrometra.

1. *Retroversion of the Uterus* may be confounded with the early stage of ovarian dropsy, when the tumour is situated in the pelvic cavity between the rectum and vagina; but a careful examination of the uterus will decide the point. In retroversion the os uteri is thrown forwards and upwards, the womb is immovable, the pain is urgent and distressing, and the bladder is generally distended. Not so in ovarian dropsy.

Retroflexion of the uterus, which has been well described by Dr. Rigby, more closely resembles ovarian dropsy; but, on examination by the uterine sound, the displacement is recognisable; and, by careful manipulation, the fundus of the uterus can be restored to its natural position.

2. *Tumours of the Uterus.—a. Solid Tumours,* particularly those growing from the outside of the uterus with distinct peduncles, may at first be mistaken for ovarian dropsy: but a careful examination, first of the uterus itself, and then of the tumour, in which there will be detected neither elasticity nor fluctuation, will mostly soon determine the point. Still the difficulties of diagnosis are often very considerable, as is illustrated by the many recorded cases of error, where the solid character of the tumour has not been discovered until the abdomen has been laid open with the intent of performing ovariotomy. An instructive case of this sort has been published by Dr. Myrtle (*Monthly Journal of Medical Science,* vol. xii., 1851, p. 229), who has likewise collected notes of several similar instances.

This case of Dr. Myrtle was operated on twenty-five years before death occurred by apoplexy. The operation was undertaken by Mr. Lizars, and an account of it published by him. He states that, on opening the peritoneum (*Observations on Extraction of Diseased Ovaria,* pp. 19, 20, 1825), "a multiplicity of convoluted vessels presented themselves, of various magnitude, from the thickness of a finger to that of a crow's quill. . . . . On minute examination, they were found to be the blood-vessels of the omentum majus, enormously enlarged, running on the

surface, and into the substance of the tumour, which appeared an enlarged ovarium." The idea of extirpation was abandoned; but Mr. Lizars both punctured and made an incision into the tumour, which proved to be solid and cartilaginous: it bled but little. It was not till the autopsy proved the contrary, that the belief in the ovarian origin of this tumour was subverted. Much ascites co-existed with it, "and the difficulty of diagnosis was to no small degree increased, on account of the peculiar effect of the very strong adhesions, dividing, as it were, the abdomen into something like two cavities longitudinally, the firm fibrous tumour being in the centre." Both ovaries were found healthy, and in their natural position; the tumour was attached to the fundus uteri by a pedicle between two and three inches long, formed by a fold of peritoneum. "The uterus was so atrophied as to make but a slight inequality in the appearance of the vagina and pedicle, and could be but little distinguished by the touch, as they were much of the same breadth and thickness, and ran quite in the same mesial line."

b. Fibro-cystic Uterine Tumours.—The diagnosis between these very rare tumours and encysted ovarian disease, must be more difficult than even in the case of solid tumours. Indeed, I know of no distinguishing marks between the two. The uncertainty which must exist is illustrated by a case published by Mr. Hewett, of St. George's Hospital, in the *London Journal of Medicine* for July, 1850:—"An unmarried female, æt. 47, was admitted into St. George's Hospital, under the care of Dr. Wilson, with great swelling and distension of the abdomen. The symptoms, which had existed about twelve months, had been at first confined to the left iliac fossa, but had subsequently spread over the greater part of the belly. Fluctuation was very evident in various regions, and the disease presented all the characters of ovarian dropsy. Œdema of the legs was present, as well as pain in the region of the heart, and difficulty of breathing in going upstairs. The general health had not been much affected, but of late she had lost flesh. The catamenia had been absent for the last six months; the urine was scanty and highly acid. She was put on diuretics and good diet. After five days it was found she had decreased two inches in

circumference round the abdomen, and that there was also much less swelling of the feet. Under this plan of treatment she at first contrived to improve slightly; but the symptoms and consequent distress having subsequently increased, Mr. Hawkins tapped the abdomen, and drew off fifteen pints of thick fluid, of a reddish colour, and mixed, towards the last, with blood and some flakes of lymph. After the operation, it was observed that the decrease in size had occurred principally on the left side, and two masses of solid substance were detected, which appeared to form part of a tumour, rising from the pelvis. The operation was at first followed by marked relief; but two days afterwards, symptoms of low peritonitis appeared, and the patient died on the eighth day after being tapped.

"The body was examined eighteen hours after death. The cavity of the peritoneum contained a large quantity of dark-coloured fluid, mixed with flakes of recently effused lymph, which served to glue together the convolutions of the intestines. In its lower two-thirds the abdomen was occupied by a large tumour, which, rising out of the pelvis, had displaced the intestines, and become attached by slight adhesions to the anterior wall of the belly. The upper part of this tumour was composed of large membranous-looking cysts, with thin walls, the interior of which was inflamed, and filled with a quantity of thick, dark-coloured fluid. It was one of these cysts which had been tapped during life. Towards its lower part the tumour was principally formed of a more solid substance, and filled with an enormous number of cysts, varying in size from that of a pin's head to that of a large orange. These cysts, which are all lined with a thin, smooth, delicate-looking membrane, were filled with clear fluid, containing a large quantity of albumen. The diseased mass was, at first, thought to be connected with one of the ovaries; but both these organs were found to be lying behind it, and quite healthy. On further inspection the tumour was traced to the right side of the fundus of the uterus, to which part it was connected by means of a pedicle, two inches in breadth, and an inch and a half in length, formed by the fibres of the uterus, which were trained upwards some distance and then lost. Among these fibres were several vessels of large

size. Here and there, in the lower part of the tumour, were scattered some spots of fibrous tissue, hard, dense, and without any cysts. In the body of the uterus, deeply imbedded in its structure, there was a common fibrous tumour, the size of a bean. There was no affection whatever of any of the glands. The other viscera of the abdomen and thorax healthy."

3. *Ascites*—may be, and is, more frequently mistaken for encysted disease of the ovary; and, in truth, when the abdomen is excessively distended, the history of the case is more to be depended on than percussion and manual examination. Ascites is usually the result of chronic peritonitis, of cardiac, hepatic, or renal disease, and its appearance is preceded and attended by the symptoms of such disease, and by much bodily ailment; whereas ovarian dropsy generally commences with only a little disturbance in the pelvic viscera, the patient being otherwise healthy. Moreover, in cardiac and renal dropsy there is not ascites alone, but also anasarca; and we also derive additional distinctions between dropsy of the ovary and any other about the abdomen by negative evidence,—by the absence of the peculiar and well-understood general signs of organic disease of the heart, liver, or kidneys; by the inefficacy of drastic purgatives, and of diuretics to produce any comparative diminution of the tumour.

Sometimes there is a complication of the ovarian dropsy with peritoneal effusion, when the ovarian cyst can generally be detected floating in the surrounding liquid, and its attachment to one or other ovary may be made out. An effusion of this sort may be the consequence of the friction or irritation of the ovarian sac against the peritoneum, causing chronic peritonitis.

In the early stages, percussion carefully practised will often determine the diagnosis. Want of resonance in the lowest part in all positions, with tympanitic sound on the highest level in all positions, indicates ascites, because in this disease the fluid always gravitates towards the lowest part of the abdominal cavity, and the intestines, instead of being displaced upwards and to the sides, as happens with an ovarian tumour, float as it were in the dropsical effusion. Manipulation also discovers a

circumscribed elastic tumour in the former malady, and a diffused fluctuation in the latter, in which, too, the enlargement is more equable in character, and not harder at one point than another. However, in the late stages of ovarian dropsy, when the belly is enormously distended, fluctuation becomes more diffused, like that in ascites, and the uneven and limited wall of the cyst may not be discoverable.

4. *Pregnancy* is not unfrequently confounded with ovarian dropsy; that this should happen is not so surprising when it is remembered that the commencement of the ovarian disease is sometimes accompanied by many of the earlier symptoms of pregnancy (see p. 181), although the history of the case, its duration and course, and a careful examination of the uterus—stethoscopic and manual—will dispel the error. Stethoscopic signs will not be available where the child is dead, and they may even lead us into error; for in an ovarian tumour, besides veins meandering over it, "arteries" (says Dr. Churchill) "may also be felt pulsating sometimes; and in one such case I observed a distinct 'bruit de soufflet,' like the placental 'souffle:' when the fœtal heart is heard, all doubt will be dissipated. Manual examination will detect the well-known state of the os and cervix uteri, if there be pregnancy, and by 'ballottement' we may assure ourselves of the presence of a fœtus; whilst externally, the movements of the child may be felt. Fluctuation in the tumour will generally be an indication of an ovarian cyst; but, at the same time, it must be remembered that, owing to dropsy of the amnion, fluctuation may be perceptible in the enlargement of pregnancy."

The danger of confounding ovarian dropsy with pregnancy cannot exist in cases of a standing much beyond the usual period of gestation; except indeed, in those very rare instances of extra-uterine fœtation where the embryo has become encysted. An interesting case of ovarian pregnancy of twelve years' duration, with a perfectly mature fœtus, is related in the *Monthly Journal of Medical Science*, vol. xiii., 1851, p. 478.

A case lately came under my notice, where pregnancy had been presumed by more than one medical man; but the patient, finding herself not to increase in size, whilst various consti-

tutional symptoms multiplied, consulted me. On using a uterine sound, I concluded she was not pregnant, but suffered from an enlarged ovarian cyst, with thick cheesy contents, a diagnosis which subsequent tapping confirmed. I was suddenly summoned to another patient supposed to have ovarian dropsy, but found her, on my arrival, in premature labour at the fifth month.

5. *Pregnancy complicated with Ovarian Dropsy.*—This is perhaps the most difficult of all to distinguish and determine. By the usual methods of examination we may detect pregnancy, but easily overlook the ovarian dropsy, unless this has been discovered prior to conception. It is therefore very necessary to learn the history of the patient, where there is unusual distension of the abdomen beyond that common during child-bearing. Even if a dropsical swelling be recognised in addition to that of pregnancy, it is not unlikely to be supposed ascitic in character; however, in ascites, the fluid will collect, or may be made by position to do so, in front of the uterus, whereas in encysted dropsy the tumour rises behind the uterus, and no change of posture will cause any of its fluid to appear anterior to it. In general, moreover, the uterus will be elevated by the cyst, and its mouth pushed beyond the reach of the finger. When the ovarian cyst is still within the pelvis, examination per vaginam et rectum, will make known the presence of two tumours. Under such circumstances the suffering from compression in the pelvis is likely to be very great.

In the complication in question, it is the determination of the existence of pregnancy which is of paramount importance. If this be made out, further proceedings will have to be regulated by the period to which gestation has advanced, by the size and relations of the tumour, and by its possible effects on the process of parturition. It is not my business, however, to enter into the indications of management of delivery under such circumstances of difficulty.

I have met with several cases of this complication. In one, the lady was pregnant with her second child. I found her generally ill and weak, complaining of the enormous size of her abdomen, and satisfied in her own mind that she should have

twins. At the proper period labour came on, and the child was born without difficulty; but on placing my hand externally, to grasp the uterus, I could not feel it, for the pelvis was filled by a white, soft, elastic tumour, and the uterus had ascended out of the pelvic cavity, and was above this tumour, which I recognised to be an ovarian cyst. On endeavouring to reach the uterus, to remove the placenta, and on pressing my other hand externally over the uterus, I felt the tumour suddenly rupture, and discharge its clear, amber-coloured fluid down the side of my arm. The uterus now descended, the placenta was removed, and a very tight bandage applied, and kept on for several weeks. At a subsequent confinement not a vestige of this tumour could be felt. In a second case, the patient was safely delivered of a full-grown child, and subsequently I tapped the cyst, removed sixteen pints of fluid, and applied tight bandaging. In a third case, the patient was delivered in the country, and came to me directly after her confinement. Tapping and pressure were resorted to successfully in these three cases mentioned.

6. *Cystic Tumours of the Abdomen.*—Such are occasionally developed in the sac of the peritoneum, or external to it in the abdominal wall; or still more rarely in the omentum, or mesentery, or in connexion with the kidney or liver. Such cysts are sometimes the result of hydatids. But whatever their nature, they are frequently distinguishable with difficulty, or even not at all, from ovarian cysts; those from the liver and kidney are the most likely to be confounded with them. In seeking a diagnosis where the tumour is of great size, we must rely chiefly on the history of the case. We must learn at what point the swelling first showed itself; what function has been most disordered; where pain has been the greatest.

The production of cysts from the kidney or liver is necessarily attended by much disordered function, and by greater bodily suffering than most forms of ovarian dropsy, whilst the site of the first signs of disease is quite different. Cysts of the omentum and mesentery are very rare, and those of the peritoneum and abdominal wall hardly less so; in the two former, more functional disturbance may be expected; in the latter, the resemblance to ovarian cysts is even closer;—there is little con-

stitutional disorder, and, as in dropsy of the ovary, the swelling is not uniform, and fluctuation not so diffuse and evident as in ascites; it may be that in extra-peritoneal dropsy, the prominence of the tumour is greater in front than in the ovarian form.

Dr. Simpson described (see Abstract in the Association Medical Journal, Feb. 10th, 1854, p. 137,) before the Medico-Chirurgical Society of Edinburgh, an example of hydatids occurring in the peritoneal cavity, and external to a large ovarian cyst. "Their origin was traceable to the peritoneal basement membrane, from which they sprang; and in their course of growth they probably projected into the cavity of the peritoneum, and subsequently became detached." The patient had previously been tapped without the escape of any such fluid; the distension of the abdomen was greater than Dr. Simpson had ever before seen; fluctuation was present, more particularly in the middle of the swelling. It is very doubtful if an ovarian sac could be discovered under such circumstances; and it must be confessed that our diagnosis will be at best vague in most cases of cystic abdominal tumours.

Mr. Harvey related a case of great interest at the London Medical Society, of supposed ovarian dropsy. Ovariotomy was determined on but not executed, and when the patient died, the disease was found to be an hydatid cyst connected with the liver, no ovarian disease whatever existing.

The following occurred to Dr. Buckner, of the United States (*Medico-Chirurgical Review*, Jan. 1853, p. 293.) The case is quoted from the *American Journal of Medical Science*, Oct. 1852. "The case having been diagnosed as ovarian, and operation decided on, an incision nine inches long was carried from umbilicus to pubes; the tumour was then found to be not ovarian, but situate in the mesentery, between the laminæ of the peritoneum, and surrounded by small intestines. The operation was proceeded with, the tumour dissected out, and the superior mesenteric artery, and other small arteries tied. The patient recovered, and in spite of the great separation of the mesentery from the intestine, no apparent bad consequence of any kind ensued." This is certainly the most hazardous feat of

operative proceeding I am acquainted with, and one in which our Transatlantic brother has certainly gone a-head.

7. *A Distended Urinary Bladder* has been mistaken for an ovarian cyst. I once saw a case of this kind in a young unmarried lady, æt. 23, from the country. She stated that she had been under treatment for four months, for "falling down of the uterus," but that during the last month she had become very much enlarged in the body, and that her medical attendant thought she was suffering from ovarian dropsy. I could feel a round, smooth tumour, the size of a fœtal head, rising up from the pubic region, with distinct fluctuation. She told me she had passed but very little urine for some weeks, and then only in very small quantities at a time. On examination per vaginam, I discovered a retroverted uterus, the os and cervix pressing firmly against the neck of the bladder. On replacing the uterus by the uterine sound, and pressing on the tumour through the abdominal wall, urine escaped through the urethra; I then introduced a catheter, and drew off seven pints of dark, offensive urine, and the tumour at once disappeared

8. *Accumulation of Air in the Intestines,* especially if there has been chronic peritonitis leaving some ascitic fluid, may be mistaken for encysted dropsy. Such a case came under my notice some time ago, when my diagnosis was verified by a post-mortem examination. Mostly tympanitis is unmistakeable. Anæsthesia by chloroform has decided the diagnosis at times.

9. *Accumulation of Fæces in the Intestines* is another condition which has been mistaken for ovarian dropsy. I once saw a case of simple encysted ovarian dropsy, which, in its earliest stage, was considered by a very distinguished surgeon in London to be an accumulation of fæces. The case was treated by tapping and pressure, and the result was a permanent cure.

10. *Enlargement of the Viscera of the Abdomen,* especially of the liver, the spleen, or kidney. I could illustrate this subject by mentioning some curious cases of error in diagnosis, in connexion with each of these organs, but I shall merely mention, that in these cases we generally have severe constitutional symptoms pointing out the nature of the disease. (See also remarks on cystic tumours, p. 315.)

The excessive production of fat in the omentum and abdominal parietes has been confounded with encysted dropsy; such a case is mentioned in Mr. Lizars' work. (Lizars, J., *Observations on Extraction of Diseased Ovaria,* Edinburgh, 1825.)

11. *Recto-vaginal Hernia and Displacement of the Ovary* into the recto-vaginal space. The mode of diagnosing these conditions of the pelvic viscera has already been discussed. (See p. 296.) Tumours also confined to that space,—the retro-uterine of some authors (see *L'Union Médicale* for May 31, 1851, for M. Huguier's Observations; also Dr. Tilt on "Sanguineous Pelvic Cysts," *Lancet,* Dec. 11, 1852)—may be distinguished from ovarian by the differential signs already mentioned (p. 296) of the latter.

12. *Pelvic and Psoas Abscess* may generally be detected without difficulty, by reference to the past history of the case as compared with the present condition of the patient's health. They generally occur in persons of a strumous habit, but may be the result of injury or of accident, and are preceded by considerable constitutional disturbance, the result of inflammatory fever. A rapid pulse and a hot skin, loss of appetite, diminished secretions, and one or more distinct rigors, are among the general symptoms. The local signs are indistinct fluctuation, throbbing, and especially great tenderness and intolerance of manipulation.

13. *Retention of the Menstrual Fluid from Imperforate Hymen.*—Mr. B. Travers, jun., relates (*Lancet,* 1849, vol. ii. p. 387) a case of this kind, which was mistaken for ovarian disease. A young girl was admitted into St. Thomas's Hospital under the care of the late Dr. Williams. The abdomen was much distended, and on examination the disease was supposed to be ovarian. An examination per vaginam detected a fluctuating tumour, which, on being punctured by a lancet, gave exit to a washhand-basin full of menstrual fluid. This girl's health was bad; she was anæmic, emaciated, and did not sleep; there were other symptoms also, to warrant the suspicion that organic disease might be present, and he (Mr. Travers) thought the condition illustrated by this case might be classed among those likely to be mistaken for ovarian disease.

14. *Hydrometra* in many points will resemble the last. It is a rare condition, and, like ovarian dropsy, causes no great disturbance of the health. The history of the case will assist us in distinguishing this form of dropsy from that of the ovaries, but the use of the uterine sound suggests itself as the readiest means of so doing.

Treatment of Ovarian Dropsy.

A great variety of opinion has existed in the profession on the propriety of interfering with a disease which is seldom malignant in its character, and which occasionally exists for many years without either destroying life, or materially interfering with the general health. For many years the subject attracted but little attention, and practitioners for the most part contented themselves with either doing nothing, or with tapping the patient occasionally when the degree of distension became urgent. Of late, however, the subject has excited the attention which it deservedly merits, since it afflicts a very large number of females, particularly during the procreative period of life, and tends, to say the least, to shorten existence, and to render the subject of it, in a great degree, unfit for the duties and incapable of the pleasures of social life. Moreover, it has been proved to be curable in so many instances, as to justify the attempt to cure it in nearly all.

General Remedies.—The use of medicines alone internally to secure the obliteration of an ovarian cyst, even at an early stage, is almost hopeless, although when conjoined with surgical means it may be of considerable avail. If a patient complains of uneasiness and pain in one iliac region, we may suspect ovarian disease; but until a cyst become evident in the pelvis, we cannot be certain that we have to deal with that disease, and consequently our remedies can be only of a general kind, and such as will combat the apparent irritation, congestion, or inflammation. Yet when a cyst is developed, and we are fortunate enough to discover it at its earliest epoch, medical means will be rightly used to endeavour to arrest its further growth, and to bring about its atrophy. Thus the application of leeches and cupping, and counter-irritation, are

indicated where active morbid action is evident, or where the catamenia are wanting; and when these are subdued, the preparations of iodine internally and externally should be persevered in. Since, moreover, a state of perfect health is inimical to the progress of any morbid process, the exhibition of tonics and of medicines to secure the proper performance of the several functions, is called for. Among the various tonics, the iodide of iron has enjoyed considerable reputation. I have frequently given it in the various stages of ovarian disease, and obtained much improvement of the general health, but have never seen it produce any effect upon the tumour, as some have thought to happen. Mercury, diuretics, and purgatives, although under particular circumstances useful, are rather to be avoided, on account of their prejudicial influence on the health and strength; they have no such influence in lessening ovarian dropsy, as is witnessed in ascites.

Dr. Watson has thus expressed himself respecting the employment of remedies (*Principles and Practice of Physic*) :—"My position, as physician to a hospital, has brought under my notice many cases of ovarian swelling at a very early period of its development. I have treated such cases assiduously with the remedies of chronic inflammation, frequent topical bleedings and the use of mercury, till the gums were affected; with the remedies of ordinary dropsy, diuretics and drastic purgatives; and with remedies accounted specific, the liquor potassæ, and the various preparations of iodine; and I must honestly confess to you that I am unable to reckon one single instance of success."

I have myself, especially in past years, given a fair trial to iodine and its salts in the treatment of ovarian dropsy, but I cannot quote any instances in which I have found it curative, not even in a partial degree. I have applied the tincture alone, and likewise in the form of an ointment, to the abdominal parietes and to the inside of the thighs, where it may be supposed to act more readily. I also prescribed in combination with its external use, the internal exhibition of the iodide of potassium, commencing with five grains three times a day, and gradually increasing the dose.

The use of iodine externally and internally has had many advocates, probably from its known effect in producing absorption, especially of some parenchymatous glandular organs, as the mamma and testis. Yet, when we consider the pathology of ovarian cysts, we can derive little encouragement in attempting to procure their absorption by iodine, or indeed by any medicines; still, as accessories, we must not neglect them. I have, nevertheless, some fears that the dosing with iodine has sometimes been carried too far, and that the health of patients has been injured. The dose of iodide of potassium has been increased—gradually indeed—to twenty grains; and iodine has at the same time been applied externally, and the tumours thereby have, in a few instances, been stated to have become softer; but this end has not been attained without damage to the economy, nor, as the reports of cases intimate, without great danger from having excited inflammation in the sac, peritonitis, and inflammatory and irritative fever.

In the always desirable endeavour to recruit and sustain the patient's health, hygienic measures should be attended to; a careful regimen, change of air and scene, gentle exercise, and particularly the avoiding of any sort of irritation of the uterine organs. Attention to these matters is beneficial in all stages of the malady; whilst, as above intimated, the application of remedies must be regulated by the stage of the disease, the symptoms, and the particular conditions arising from time to time.

Surgical Treatment of Ovarian Dropsy.

The following are the principal modes of surgical treatment hitherto proposed and adopted. In speaking of them, I shall have further remarks to make on the medical treatment.

1. Tapping, simply.
2. Tapping, with pressure.
3. Tapping, and injection of iodine into the sac.
4. Artificial oviduct.
   - *a.* external.
   - *b.* per vaginam.
   - *c.* per rectum.

5. Excision of a portion of the cyst.
   a. by a small incision.
   b. by a large incision.
6. Extirpation.
7. Other plans.

1. *Tapping.*

This operation is usually performed in the course of the *linea alba*, the trocar being thrust in about midway between the umbilicus and pubes. It has also been the general practice to place the patient in the upright posture, resting on the edge of a chair or a bed, to encircle the abdomen with a broad bandage to be drawn tightly from behind by an assistant, so as to keep up a supposed necessary pressure as the fluid escapes, and to cut a hole through the bandage at the point where the trocar is to be introduced.

Mode of Performing the Operation.—Now various objections attach to this mode of procedure, and I have for the last ten years practised tapping the patient in the linea semilunaris, in the recumbent posture, and without the assistance of a bandage. Besides difficulties from the employment of the compressing bandage, such as drawing into folds and altering its position as the abdomen collapses, there is a great tendency to syncope from the upright posture,—a very inconvenient occurrence. On the other hand, the supine position guards against faintness, and, together with the site of the puncture in the most dependent part, permits the most complete evacuation of the sac.

I place the patient on her side—that on which the ovarian tumour has originated, with the abdomen hanging over the edge of the bed. On puncturing in the semilunar line, the chief care is to avoid wounding the epigastric artery, and any enlarged veins which may be present. By previously emptying the bladder, any danger of injuring this viscus is obviated. Two other possible accidents are mentioned by Dr. Simpson (*The Monthly Journal of Medical Science,* Oct. 1852, p. 363). "The uterus is sometimes elevated and drawn upwards in front of an ovarian tumour, and has been fatally wounded by the trocar in the operation of paracentesis. . . . All chance of injuring it

would be avoided, if a point in the cyst sufficiently fluctuating and thin in its parietes be selected as the site of the puncture." Again, "Ovarian cysts have been occasionally found so turned upon their axis, that the elongated Fallopian tube has stretched across the front of the diseased ovary, and interfered with the introduction of the trocar; and a dense fibrous state of the cyst at particular parts has led to the same mischance—the cyst thus becoming merely displaced, and not perforated by the pressure of the point of the instrument. A case of obstruction to tapping from this cause is detailed by Dr. Bright in the Guy's Hospital Reports. The puncture, in consequence, must not be made over a point which feels unequal and condensed in its structure."

It is sometimes desirable, and particularly so if the abdominal wall be thick and fat, to make an incision through the integuments before attempting to plunge the trocar with its canula into the cyst.

The trocar and canula should be much larger than those in general use. If the fluid be thin and transparent, it runs well enough through a small canula; but if of treacly, viscid consistence, it scarcely escapes at all, and if there are albuminous flakes or cheesy matter, the tube becomes entirely clogged up. Moreover, the very large instrument I use admits of free and rapid emptying of the cyst, and saves the patient a tedious operation, it may be of an hour's duration. There is yet another advantage of a large trocar and the recumbent posture, —that two or three cysts in multilocular disease can be successively punctured through the same canula by simply withdrawing and reintroducing the trocar without removing the canula. This advantage could be gained only in the recumbent position, for in the upright the gravitation of the cyst would not permit it. By turning the patient more on her side, and by pressing on the abdomen, the evacuation of the cyst may be rendered more complete. When the escape of the fluid has ceased and the canula is withdrawn, a pledget of lint over the wound, which is to be drawn together by strips of plaster, is generally sufficient to secure adhesion; where, however, a larger wound has been made, a stitch is sometimes required.

Several surgeons have proposed, and put in practice, tapping per vaginam, and Kiwisch prefers it, whenever practicable, to tapping through the abdomen (*Op. cit.* p. 145). "As to its practicability," he continues, "it is not absolutely necessary that the cyst should form a protuberance, if it can be reached in the exploration through the vaginal wall. It is certainly not to be denied that, when the cysts are situated high up, the vaginal puncture is attended with many more and greater difficulties than abdominal tappings; and that without great care dangerous lesions of the neighbouring structures may easily be produced; it therefore appears advisable that such difficult cases should be undertaken only by an experienced operator."

Scanzoni, it seems, from Dr. Clay's notes, followed this plan in fourteen cases, and cured eight of them; and more recently, Dr. Huguier, of Paris, has been a strong advocate for it, and treats the dangers dreaded on the part of several practitioners as highly magnified.

I must confess that tapping per vaginam has never recommended itself to me as a proceeding to be followed in the general way proposed by Kiwisch. It has appeared to me to possess no such advantages in general as to lead me to substitute it for paracentesis abdominis, and it cannot but be conceded that where the tumour does not point in the direction of the vagina, there must be considerable danger to surrounding parts in the attempt to puncture it. Experience must decide the question of its applicability and utility, and probably the operation should more frequently find favour than it has hitherto done.

Its chief indication is where it is hoped to attain a radical cure by emptying the cyst and keeping the puncture open, so as to allow a continual drain through it of any subsequently produced secretion. This way of treatment will hereafter come again under notice in my remarks on the "formation of an artificial oviduct," as a means of cure for ovarian dropsy. But I may here remark, that, as a curative proceeding, it is principally applicable to simple cysts, and to cysts of the Fallopian tube when they point towards the vagina; and that its utility in those cases will be circumscribed by the

difficulty of diagnosing them from the compound form of ovarian disease.

Dr. Simpson has expressed a preference to vaginal paracentesis in the case of simple or unilocular cysts, and states (*Op. cit.* p. 364) that he has "more than once evacuated the contents of a dropsy of the Fallopian tube, by introducing the small trocar, which forms the usual exploring needle, in this position. In one of these cases, the elongated sac formed by the distended Fallopian tube inflamed after its evacuation, and in consequence, seemed to be entirely obliterated;" the patient subsequently recovering from her previously bad health, and becoming pregnant.

As the advocates of tapping per vaginam can point to a considerable number of cases of recorded cure, so those who practise the more common operation of paracentesis abdominis can do the same. But I believe that in both cases it would be found that such examples of cure by tapping almost all belonged to the unilocular variety of ovarian disease, or to cystic dilatation of the Fallopian tubes.

The cure of a cyst by abdominal tapping is not seen after one operation but after several; and when it does occur, it will be found to do so as the result of an inflammatory process in the cyst, or of its apparent exhaustion, and shrivelling by the continual draining away of its contents through the artificial opening. The inflammatory process may be destructive of the secretory power of the cyst by effecting such a change in its walls as shall interfere with the vascular activity necessary to secretion; or it may cause the effusion of organizable lymph and a progressive shrinking and consolidation of the cyst walls, or, lastly, it may end in such suppuration that the sac is, as it were, melted away in the pus. The obliteration of the cyst by allowing a continual drain of its serous fluid, acts likewise as a means of exhaustion and atrophy.

But though in the history of paracentesis we may point here and there to a successful issue, yet the general conclusion to be drawn is that the rapidity of the ovarian disease is increased by its performance, and that, on the whole, the life of the patient is shortened. Mostly the fluid of a cyst quickly reaccumulates after its evacuation, and often this second formation is richer

in organic matters than the first, and consequently a source of increased debility to the patient. The rate and extent to which reaccumulation may proceed in an ovarian cyst have already been noticed (p. 275), as also has the very varied degree of toleration with which this rapid secretion and discharge have been borne by different women. Moreover, the operation of paracentesis is not without danger. Leaving out of view the risk of puncturing a blood-vessel before reaching the cyst, there is danger of inflammation of the peritoneum and of the cyst, and of hæmorrhage within the latter. Thus, where the cyst has not become adherent to the abdominal wall at the seat of the puncture, some of its contents will almost inevitably escape into the peritoneum, and if these be of an irritant nature and not simply serous—when they are rarely the cause of mischief—they will produce peritonitis, possibly of a fatal character. Again, the inflammation of the cyst after puncture may, if not fatal, cause great suffering to the patient and such a disturbance of the general health as may be of serious moment. So, in the third cause of danger—viz. from hæmorrhage within the sac, this is every now and then met with, and in very rare instances has proved sufficient to cause fatal anæmia, owing to the extreme vascularity of the cyst.

An appeal to statistics, finally, will show that simple tapping is, on the whole, not beneficial in ovarian dropsy. Kiwisch (*Op. cit.* p. 159) has endeavoured to get at the general results of the operation, and for this end collects the records of his own cases with those quoted by Southam and Lee, and thus expresses himself, "It results that of the collective number of one hundred and thirty tapped, twenty-two died in the course of a few hours or days, which is about seventeen per cent. It is shown from the progress of the disease, that death, in these cases, was nearly always caused by the tapping alone, and this unfavourable termination did not take place only under conditions very unfavourable for the operation; but, contrary to expectation, it generally happened in cases which were apparently quite suitable. In the twenty-five cases which proved fatal before the termination of half-a-year, we must also ascribe the unfavourable issue chiefly to the consequences of tapping; and,

in general, we shall not far err by assuming that the hundred and thirty patients mentioned had their life apparently shortened by that operation. In these, therefore, the design of prolonging the duration of life was not attained. Even in many cases in which there was a longer duration of life after tapping, the fact is questionable, because the operation was performed, not unfrequently, when the development of the disease was slight, and in which it is still doubtful whether, in the undisturbed course of the disease, the life of the patient might not have remained unmenaced for a greater number of years. Accordingly, we are obliged to assume that the intention of conferring a larger duration of life by paracentesis has not been attained in the majority of patients; but that in a considerable number of cases the consequence of it was an apparent shortening of life; and that, even under the most favourable conditions, its success is very uncertain, and that the issue cannot be predicted."

This conclusion, thus arrived at by Kiwisch, is tantamount to that expressed in the well-known dictum of Dr. William Hunter, "that the patient will have the best chance of living longest, under ovarian dropsy, who does the least to get rid of it." Moreover, the practice of Dr. Denman and other eminent accoucheurs and surgeons, to defer tapping as long as possible, was founded on the same conviction.

On the other side, Dr. Atlee, of Philadelphia, United States, who is well known as a distinguished operator in ovarian disease, affirms that the large experience of himself and brother, since 1828, and the numerous inquiries he has made of surgeons in large practice, convince him that death, or even serious symptoms, are not common results of tapping, but that life is usually prolonged instead of being curtailed by it, and that in several instances permanent recovery has followed its performance. (*American Journal of Medical Science*, 1849.)

But admitting the general belief in the disadvantages of tapping in ovarian dropsy to be well founded, it is allowed, on all hands, that this proceeding is demanded in certain cases; viz., in those where the tumour by its size, its position, and its adhesions so embarrasses the functions of bodily organs, and is

such a cause of distress and pain to the sufferer, that life itself is placed in jeopardy. Under these circumstances the relief, though it may be brief, is necessary, and the practitioner has no alternative but to perform the operation. Still, both the patient and his medical attendant will often be led to resort to tapping, when the inconveniences and sufferings fall much short of what have just been adverted to, and take the chance of future ill-consequences to gain even temporary relief.

Tapping with the view of establishing a fistulous opening, and of destroying the ovarian cyst, will again come under consideration in the notice of the operations for forming an "artificial oviduct;" where, likewise, I shall find a place for describing Kiwisch's method as propounded in his book.

2. *Tapping with Pressure.*

Tapping should always be combined with pressure, both as a matter of precaution when the origin of the cyst is obscure, and as affording an increased probability of cure in any case. Like every other simple operation, the application of pressure may fail from inattention and carelessness. First of all, compresses of linen or lint should be so arranged as to present a convex surface, adapted as nicely as possible to the concavity of the pelvis. Over these compresses straps of adhesive plaster should be applied so as to embrace the spine, meeting and crossing in front, and be extended from the vertebral articulation of the eighth rib to the sacrum. Over this strapping, either a broad flannel roller, or, still better, a band with strings and loops which tie in front, may be applied; or a well-made bandage, which by lacing in front may be gradually tightened, as made at my suggestion by Mr. Spratt, 2, Brook-street, and by Mrs. Fletcher, Princes-street, Cavendish-square. These bandages must be prevented from slipping upwards by a strap around each thigh. Both the compresses and the bandages will require watching and adjusting from time to time, lest by unequal pressure, the bowels or bladder be subjected to inconvenience. Also the crest of the ilium should be guarded with thick buffalo skin or amadou plaster.

The effect of pressure, before tapping, is threefold in its ope-

ration. It sometimes retards the filling of the cyst, and thus prevents the increase of the tumour; it sometimes brings about absorption of the whole contents; or, lastly, it may produce a rupture of the cyst into the vagina, rectum, or peritoneum. After tapping, pressure tends to prevent the refilling of the cyst, probably by compressing mechanically the blood-vessels which supply the fluid. The use of pressure is countenanced by its known good results in dispersing various tumours, or in arresting their growth. When tapping with pressure is resorted to as a means of cure, or even with the view only of retarding the progress of ovarian dropsy, medicines to stimulate the functions of the various abdominal organs, to correct faulty secretions, and generally to improve the health and strength, should also be administered.

The use of tapping with pressure and auxiliary medical treatment, I consider most applicable to unilocular cysts without adhesions, with clear and not albuminous contents, and where time and the condition of the patient admit of its persevering application. There are also cases of multilocular disease, and others where adhesions exist, where pressure may do material good, and retard the growth.

This plan of treatment I first suggested in 1844, and the results have been published from time to time in the *Lancet*, not only by myself, but by other practitioners who have been induced to give it a trial. For the particulars of those already published, I must refer the reader to the *Lancet*, from 1844 to 1852.

Besides those cases which have appeared in the journal referred to, I have had several others which have proved entirely successful. Certainly, the result of some has disappointed me, where I had hoped to have effected a permanent cure; but, even in such, great benefit has been derived from the plan, the patients have regained health and comfort, and the disease has for a time been suppressed. Further, in some instances where ovarian dropsy has reappeared, it has been in consequence of the development of new cysts, an event to be wholly prevented only by resort to extirpation of the entire diseased ovary.

The late Mr. T. S. Lee (*On Tumours of the Uterus*, 1847) put

forth the following paragraph respecting this mode of treatment by tapping and pressure:—"This plan of treatment has been given to the profession, and apparently sanctioned by a number of successful cases; but I am bound to add that some of those cases, called and published as successful, have come into other hands; and I am authorized by a physician to state, that two of Mr. Brown's cases have come under his charge, one died of ovarian dropsy, and on a *post-mortem* examination the cyst was found still to exist as large as before; the other is still ill; the cyst has refilled, and this gentleman has been obliged to have recourse to tapping. This fact reduces considerably the value of Mr. Brown's cases."

Kiwisch, who was acquainted with Mr. Lee's book, has referred to this passage in his remarks on my plan in the following remark, "While others of his countrymen have been less successful, and have accused him of untruthfulness respecting some of the cases of cure contributed. (See the work of T. S. Lee.)"

I cannot let this very serious charge of untruthfulness pass without some observations on the paragraph in which it is embodied. On its appearance, I called upon Mr. Safford Lee to ask him what authority he had for his statement respecting the future history of the cases I had published. He referred me for it to Dr. Frederic Bird, who was the physician mentioned; but on seeing Dr. F. Bird, I could obtain no explanation from him of the grounds for the general assertion made; and, with respect to the particular statement of two cases having since fallen under his own care, Dr. Bird attempted to make out that the paragraph in question did not convey the meaning that those two cases had been published by me as cases of cure by my treatment; for, as he admitted, they had not been so published. This was a mere evasion of the meaning of the paragraph; for any ordinary reader will gather from it, as Kiwisch evidently did, that the cases quoted as under Dr. Bird's care, were untruthfully reported by me as successful.

Now I have never attempted to conceal the fact that the operation has often failed in my hands. In the *Lancet*, for 1849, I published a series of "Unsuccessful Cases;" and in

other places (as for instance, in this present work), I have recalled the history of patients operated upon by tapping and pressure, but in whom the ovarian disease has reappeared and required other treatment.

I am further prepared to admit that I anticipated, at first, too much from this mode of treatment. But it must, at the same time, be remembered, that on its first suggestion I had yet to learn by experience under what circumstances it was available as a means of cure or of relief only. Its immediate results were very encouraging, and in most instances sufficiently lasting to augur well for the future; and I was induced to try the plan largely, perhaps rather indiscriminately, and it was, therefore, not surprising that my hopes of permanent cure were in many cases disappointed.

Nevertheless, after allowing for all the frustrated hopes and failures which can be adduced, there is experience ample enough to show that tapping with pressure is a means of cure for ovarian dropsy, and that in many cases wherein it may fail to cure, it affords very material and often very lasting benefit, particularly where the cyst is simple.

To vindicate this assertion, I may refer to the cases published in the *Lancet* for 1844, as successful. Miss C., æt. 17, was well nine years after the period of treatment; Mary M., æt. 20, three years and a half afterwards; and Sarah G., æt. 19, fifteen years afterwards; of Hannah M., æt. 17, I have not any later information than at the date of my paper, when she was well. Again, the case of Miss F. R., æt. 27, published iu 1846, has been perfectly successful, as I can state from recent observation.

I will not analyse the other cases recorded, which, if not permanently cured, have derived great benefit from the proceeding. Even the unsuccessful cases reported (*Lancet*, 1849) are interesting and instructive, as showing the causes of failure and indicating where advantage may and may not be expected from the operation. And I am pleased to add, that my published cases have afforded sufficient conviction of its utility to the minds of several practitioners to induce them to follow the plan advocated.

I have hereafter quoted a case successfully treated by tapping and pressure by Mr. May, of Tottenham; and some other surgeons, and among them Mr. Eccles (see *Lancet*, 1846, p. 276), have recorded their experience of the operation.

Dr. Tanner, Assistant-Physician to King's College Hospital, has given (*Lancet*, vol. ii. 1852, p. 261) the history of three cases in which he successfully applied this mode of treatment; for he felt himself warranted in calling them successful, since his first case had remained well for four years and a half; the second was well at the close of a year, and the third for nearly as long—that is, so long as Dr. Tanner had any knowledge of her.

In a kind note he recently sent me, Dr. Tanner writes:—"My experience since this date (1852) leads me to think very highly of this plan of treatment in the case of cysts in the broad ligament, in obstructions of the Fallopian tubes, and in unilocular ovarian cysts. Indeed, with regard to the latter, I do not think it fair to submit the patient to the dangers of ovariotomy until tapping with proper pressure has been resorted to. I have not seen any mischief from the treatment."

The objection has been advanced by Dr. Simpson in his lectures against the use of pressure, that it involves great suffering and weariness to the patient. Were this true, the objection would have no very material weight, considering the importance of the end sought for, and that the pain inflicted by an operation is a very subordinate matter, provided it is unavoidable and the operation really justifiable. But I am prepared to say that my experience proves that pressure by a pad and bandages after tapping an ovarian cyst, is not a painful process,—not attended by any torture, provided that the pressure is properly applied and carefully adjusted to the parts. At this time, I have, in conjunction with Dr. Arthur Farre, a patient under this mode of treatment, and that able physician could bear me out in the assertion I make, that it is not attended by the unbearable suffering some have represented it to be.

Case I.—*Ovarian Dropsy of several years' standing; treated by tapping and pressure.*—Miss E. B., æt. 24, came under my care in July, 1848, at the recommendation of Sir B. Brodie, Dr. Bright, and Sir C.

Locock. From childhood she had a tendency to asthma; and at three years of age had diseased mesenteric glands, which left a distended state of the abdomen for some time. After the establishment of the catamenia her health much improved; but in June, 1840, she had a severe asthmatic attack, with fever and copious expectoration—hay-fever; and this recurred every summer. In May, 1844, a worse attack happened, and did not pass off till about the end of July, when it was found that the abdomen,—always swollen during these attacks,—instead of subsiding, actually increased. This was attributed to over-indulgence with grapes when at Nice, and she was treated for obstruction, with the effect of reducing the abdominal fulness. After this time hay-asthma did not recur except in a mild degree; but her health became indifferent, and an increase of the abdomen was apparent. She complained of a feeling of weight and oppression in the stomach, and sought relief by aperients. On her return to England, in 1847, her disease was recognised.

When I saw her, she was pale and debilitated. There was much wasting, particularly about the neck, shoulders, and arms. The catamenia were mostly regular; the stomach was weak, and she suffered much from heartburn, and sometimes sickness.

The abdomen was enlarged to the size of a woman's at the seventh month of pregnancy. Fluctuation was most distinct, and I concluded the cyst to be thin, and to proceed from the left ovary; but it could not be pushed over towards the right side of the median line, which made me believe it adherent to the peritoneum.

August 14th. After some preliminary medical treatment, I proceeded this day to tap the sac. Sir C. Locock, and Dr. Gardner, her ordinary medical attendant, being present. Fifteen pints of a clear, amber-coloured fluid escaped. Some slight faintness followed the operation. I strapped the wound, and over it applied my usual pads and bandage. A diuretic mixture, and some alterative, aperient pills she was previously taking, were ordered to be continued.

15th. Had had a severe asthmatic attack, which caused her to be restless, and so loosened the bandages, which it was to-day necessary to re-apply.

17th. To-day feverish and uneasy. Pulse 100; skin hot. Ordered a saline draught every four hours, and pills of ext. aloes aquosum gr. iii.; ext. tarax. gr. iv.; ferri sulph. gr. i, in pil. ii.: to be taken every night.

18th. Urine free, but alkaline and thick. To omit preceding draughts, and ordered an acid mixture in lieu of them.

24th. Has taken since the 20th, a diuretic mixture, and pills, composed of blue pill, aloes, and hyoscyamus. She is gaining flesh; appetite very good; is allowed wine daily. The recumbent posture in bed is strictly maintained. Bowels regular.

26th. Sir B. Brodie visited her with me, and, on examining the stomach, could find no indication of the cyst, and considered the progress satisfactory.

Sept. 5th. The catamenia have appeared at their proper time. Has continued to go on well. Pressure is kept up by the pads, strapping, and by a flannel bandage. Kidneys and bowels act freely.

Oct. 6th. Has continued to improve, gaining in flesh and strength. Is to go to the country for change.

Nov. 7th. Sir. B. Brodie wrote me to say he had seen Miss B. at the seaside; that she was going on as well as could be desired, and that on a very careful examination he could discover no dropsy, and no trace of a

cyst. The treatment is persevered in. At the end of another month the patient returned to London, when her health appeared excellent, and no vestige of the disease was discoverable.

Feb. 2nd, 1849. Dr. Gardner saw her, and expressed himself satisfied of the cure of the dropsy. Again, on April 4th, he visited her with Sir C. Locock and myself, when, by a careful examination, no disease could be detected.

Some months after this, on repeating an examination, Sir C. Locock and myself were so well satisfied of the complete cure of the ovarian disease, that permission was given her to marry.

May, 1854. I have the great satisfaction of adding to the preceding history, the fact that she has continued well to the present time; that is, for a period of five years and a half, without trace of a return of the malady. She was married in 1849, and I have attended her in three confinements, and have after each delivery, when the abdominal wall is in the most favourable state for complete examination, been unable to discover any vestige of ovarian disease.

1861. She subsequently had a fourth child, and four years since the ovarian cyst refilled, or, possibly, a new one developed, which was treated by tapping and pressure for a month, and again disappeared. No return of the disease has since taken place.

Case II.—Miss L., æt. 30, came under my care Sept. 9th, 1847. Complained of having suffered for many years; the stomach was considerably enlarged, but ovarian disease had not been suspected. She was much emaciated, especially about the chest and shoulders. Menstruation had always been regular; the bowels torpid; the urine free. Digestion impaired, and appetite bad; and she is altogether much debilitated.

On examination, I found a cyst about the size of a child's head, distinctly fluctuating. This I at first took to be a simple cyst; but a subsequent examination showed a solid tumour beneath it, pressing towards the rectum and the right side, and interfering with the action of the bowel. At the same time the uterus was pushed over to the left side. Ordered a cinchona draught, and pills containing aloes, blue pill, and hyoscyamus.

Sept. 29th. Her health being improved, I this day, with the assistance of my brother, Mr. George Brown, tapped the cyst in the median line, and drew off five pints of a clear, transparent, and slightly albuminous liquid. No syncope followed. The usual pads and bandages were then applied to exert pressure over the abdomen. A saline, diuretic draught was ordered; the pills, as before, continued.

30th. The kidneys and skin have acted freely. I had, during the night, to re-adjust the bandage on account of its painful pressure over the ilium.

Oct. 1st. On a vaginal examination to-day, I found on the right of the displaced uterus a hard tumour pressing on the rectum, and evidently beneath the cyst, and apparently connected to it. In size it was about equal to a small fist, and painful when pressed. On removing the bandage, it could be felt through the abdominal wall. Owing to the pressure, as applied, causing pain in this tumour, with impediment to the passage of the fæces and sympathetic vomiting, I adopted the use of two pads, stuffed with bran, and over these placed tightly a flannel band. This band being made to fasten by loops, could be made as tight as needful.

13th. A fortnight after the tapping, she had pain and œdema of the left leg, which a stimulating embrocation and friction dispersed. She was ordered a mixture containing sulphate of iron, and pills of aloes and blue pill. The bowels act regularly, and the urine is copious. She is evidently gaining flesh, and in good spirits, having previously been exceedingly desponding.

21st. Examined carefully, but could feel no return of the fluid. The tumour was perceptible more in the centre than heretofore. The catamenia are regular.

December. Has continued the application of the pressure as ordered. No return of the dropsy traceable. Her health has much improved.

Jan., 1848. She left town this month for Brighton, having received instructions on no account to discontinue the use of the bandage.

March 29th. I received a letter from Mr. Phillpotts, of Brighton, the lady's ordinary medical attendant, saying, "I examined Miss L. a few days ago, as she complained of the pressure of the bandage. There is no return of the fluid in the ovarian cyst; and, indeed, I could detect no enlargement of the ovary itself. I recommended her to continue the use of the bandage, substituting an air-compress for the one in use, and slackening the bandage itself. She is in other respects in much better health, and takes more exercise."

March, 1849. This patient has been staying in town for some weeks. She is quite free from any symptoms of the ovarian disease.

In the summer of 1860 I heard of this lady, and am pleased to be able to state that she has had no return of the local disease, and is in every respect quite well; free from the constitutional disturbance which so much embarrassed and enfeebled her health prior to her being submitted to my treatment.

Case III.—Miss S., æt. 35, came under my care June 5th, 1854, having been recommended to me by Sir Charles Locock. About four years ago began to notice a swelling of her abdomen, which came on gradually and attracted her attention by the alteration in her shape. Her menstruation was rather free and more frequent.

On examination, I diagnosed a simple unilocular ovarian cyst containing some seven quarts of fluid, and I recommended tapping and pressure.

July 13th. The patient being placed in the usual position for tapping and the part being rendered insensible to pain in three minutes by Arnott's freezing mixture, an incision was made through the integuments, and the trocar and canula introduced, when thirteen pints of clear watery fluid were drawn off, and pads and bandage applied as usual. The bandage and pads were continued for a month, no increase taking place, and she has continued perfectly well up to the present time.

Case IV.—Mrs. C., æt. 36, married, admitted into the London Surgical Home July 21st, 1859—was sent to me by Dr. Jackson, of Sheffield, who kindly supplied the following history:—

"During the last eight or nine years she had been constantly subject to severe dyspepsia, with painful and irregular menstruation, and at the catamenial periods to considerable enlargement of the abdomen. Had been married ten or twelve years; never been pregnant. About three years ago, observed a swelling, attended with severe pain, in the lower part of the abdomen, on the left side; the tumour gradually enlarged up to the period of admission.

"Diuretics and resolvents had been administered for many months without the slightest relief."

On examination, I found a distinctly fluctuating tumour on the left side, evidently ovarian and unilocular.

August 1. Tapped her in the semilunar line, and between three and four pints of sero-sanguineous fluid escaped. Pads and flannel bandages were firmly applied. This was kept up for a month, when she returned home.

I saw her three months afterwards at Sheffield, with Dr. Jackson and Mr. Pearson, when I found her perfectly well, and upon examination could distinctly feel the puckered-up cyst in the left iliac fossa.

Oct., 1860. Dr. Jackson has lately written me to state that she is perfectly well, without any return whatever of the disease.

Case V.—E. S., æt. 21, single, admitted into the London Surgical Home July 23rd, 1859.

History.—Had been ill three years, when she first perceived a swelling in the left side, which gradually increased.

On examination, a unilocular ovarian cyst was diagnosed.

Aug. 4th. She was tapped on the left side in the semilunar line. Nine and a half pints of pale, thin, and slightly albuminous fluid were drawn off immediately; bran-pads were applied, and firmly secured by nine yards of flannel bandage.

Oct. 4th. Pressure had been steadily continued up to this period, when the most careful examination could detect no fluctuation. From this time she steadily improved in health, and continued as a nurse in the Institution for nine months. She is now in service, and perfectly well.

Case VI.—S. D., æt. 26, single, residing in the country, admitted into the London Surgical Home October 7th, 1859.

History.—Has been ill for seven years. Catamenia always regular; the abdomen generally began to fill, and for the last six months it has rapidly increased. She has never suffered much inconvenience beyond the weight, her general health being good.

On examination, a unilocular ovarian cyst was diagnosed.

Oct. 22nd. She was tapped whilst in the horizontal posture on the left side, and thirty-two pints of a pale, thin, and slightly albuminous fluid were evacuated. Immediately very firm pressure was made with pads and flannel bandages. She complained a little of the pressure for the first twenty-four hours, but afterwards got accustomed to it. This was kept up for one month, when one of my ovarian bandages was applied. She returned to the country quite well, and has continued so up to the present time.

Mr. E. May, of Lower Tottenham, on seeing the brief record of the three cases last quoted in the *Lancet*, was induced in a following number of that journal (for December 8th, 1860) to publish a case, treated, as he writes, according to my suggestions some years since. As it is very shortly detailed, I will here add it:—

"C. W., æt. 24, single, a milliner, of a strumous diathesis, came to me about eight years since, with an ovarian tumour of a moderate size. She was in a tolerably good state of health. I tapped her, and carefully emptied the cyst, which was unilocular. I then applied a firm and well-adjusted pad, secured by a flannel bandage, as tightly as she could conveniently bear it. I also kept her on a light, dry diet, and gave her alteratives and diuretics for a week. She got up quite well, and continued so for four years, when she left the neighbourhood, and I lost sight of her."

3. *Injection of Iodine.*

It has been proposed both in France and England (in the former especially by Dr. Boinet) to attempt the cure of ovarian dropsy by injecting a solution of iodine into the cyst after having evacuated its contents by tapping; the object being, like that of the operation for hydrocele, to excite adhesive inflammation, and so bring about the closure of the walls of the sac. The plan has been resorted to by several surgeons in France and in this country with success, but among the members of the profession generally it has not obtained a favourable consideration, most surgeons being deterred from trying it principally on account of the great danger, as they conceive, of exciting inflammatory action in so large a sac, and in proximity with the peritoneum. Even the records of its successful use in not a few cases have not sufficed to reassure them; and there is a feeling abroad that if the radical removal of encysted ovarian disease is to be attempted, the operation of extirpating the cyst affords the greatest certainty of success, whilst its dangers are not so much greater than those attendant on such a procedure as that of tapping it and injecting it with an irritant fluid. In my opinion, and judging from my own experience with it in about a dozen cases, of which not one has died, the dangers attending this operation of injecting iodine into an ovarian cyst have been much exaggerated. There is no question that it has been resorted to in very improper cases; indeed, before experience had shown to what class of cases it was more especially adapted, its indiscriminate use was inevitable, and as a necessary result, its failure and its fatality much increased. Even yet its trial has perhaps not been sufficiently extended, and possibly in well-chosen cases it may yet be proved to be a safe and valuable mode of treatment for a disease unfortunately rarely amenable to any other than what

may be called heroic surgical treatment. At the same time I must admit that its comparative advantages, with regard to other modes of treating ovarian dropsy, have seemed to me not sufficiently great to recommend it strongly to the attention of the surgeon.

I subjoin the particulars of two or three cases in which I adopted this plan of treatment with considerable success, and the results of my experience at large are,—1, That it is only suited to the treatment of simple cysts; 2, That it is not advantageous except in cysts tapped for the first time, and in which their fluid contents are not strongly albuminous; 3, That though not curative in compound cysts, the injection of iodine may destroy a large portion of them, and greatly retard the increase of the whole morbid mass; 4. That it is not so dangerous as many suppose.

The history of the cases annexed indicates generally the mode of carrying out this operation; but to elucidate it further, I will give a few particulars. In the first place, the patient is tapped in the spot considered most desirable, and the cyst emptied as far as possible through a canula of large size, compression being carefully used to favour the discharge of its contents. This done, a long elastic tube,—for instance, a full-sized male catheter having a large aperture,—is introduced through the canula as far into the sac as is practicable, and through it the tincture of iodine is injected by means of a strong syringe, and brought, as far as possible, into contact with the whole of the inner surface of the sac. Some employ an elastic bottle as the injecting apparatus; but whatever is used, there should be sufficient force to propel the fluid to the most distant part of the cyst, and to prevent its return through the opening into the peritoneal cavity, an event not unlikely to happen when the tincture only gently escapes from the end of the catheter, and is diverted upwards by the mere contact with the collapsing walls of the cyst, or any slight impediment before it. The solution of iodine I have employed has been the tincture of the Edinburgh Pharmacopœia undiluted, a preparation about three times the strength of the tincture of iodine of the London College formula. Of this strong tincture I have

injected from four to eight ounces, and my practice has been to let it remain in the cyst, the patient being kept lying on her back and as still as possible for many—for instance, for forty-eight—hours. At the end of this time I applied gentle but steady pressure by means of bandages and a compress.

The impression will arise in many minds that this proceeding must be very painful; but the fact is, that any painful sensation accompanying the injection of an ovarian cyst with iodine is quite the exception to the rule. But if the nervous supply to ovarian sacs is so small or quite absent, it is not so with their absorbent faculty; for within a few minutes after injection the taste of the iodine is perceived in the mouth, and in half an hour the iodine may be discovered in the urine, the sweat, the saliva, and the tears—in short, in every secretion of the body. Its general effects also are soon manifested in the system, and the vomiting and prostration produced are among the most annoying and dangerous consequences of this mode of treatment, and demand the free use of stimulants.

The late M. Boinet, of Lyons, was the stoutest advocate for treating ovarian dropsy by iodine injections, and asserts in his work (*Iodotherapie*, Paris, 1855), that he had never observed any injurious consequences to follow it. His mode of proceeding differs in many points from mine. For instance, he does not reject cysts with highly albuminous viscid contents as unsuitable to it, but directs that when such matters will not readily escape, luke warm water or a weak solution of iodine should be injected into the cyst, which should be kneaded, and the patient be placed in different position to favour the mixing of the iodine solution with the contents and its contact with the wall of the sac at all parts. Moreover, he keeps the catheter fixed in the cyst, and, when necessary, changes it, replacing it on each occasion by one of larger calibre; his object being to secure the adhesion of the cyst to the abdominal wall, and for the time to maintain a fistulous opening. He takes care to allow the cyst to discharge itself of its contents two or three times daily, and repeats the injections every two or three days, and this for the space generally of several months. Lastly, the composition of the injected fluid used by him is not always the same; he re-

commends at first, a mixture of one hundred parts of water with one hundred of tincture of iodine, and four of iodide of potassium; afterwards doubles the quantity of tincture, and when the cyst is considerably lessened, uses the pure tincture.

Kiwisch (*Op. cit.* p. 165) discountenances this plan of treatment. He says, "We once saw it applied with a rapidly fatal result, and the reports of other physicians appear to be equally unfavourable. The reaction is never under the power of the practitioner, and the whole treatment should be subservient as auxiliary means to the previously mentioned method" (the establishment of a fistulous opening in the cyst). The advocates for injecting iodine will fairly object to this general way of discussing its merits; for Kiwisch does not inform us what sort of case it was in which the proceeding proved so rapidly fatal, and it might have been one most ill-suited for it. So, again, his reference to the experience of others is too wide and indefinite to have much weight in an argument.

Dr. Simpson, of Edinburgh, resorted to this plan of treatment, in 1853 and 1854, in seven or eight cases, using two or three ounces of the Edinburgh tincture at a time, a portion of which, in some instances, he allowed to escape. The conclusions he arrived at, as given in the *Monthly Journal of Medical Science* (1854, p. 467), were that:—

"1. In none of the cases of ovarian dropsy, treated with iodine injections after tapping, has he yet seen any considerable amount of local pain follow the injection, with one exception; in most instances no pain at all is felt; and in none has constitutional irritation or fever ensued. In the one exceptional case, considerable local irritation followed, and the pulse rose to 110; but the same phenomena occurred in the same patient after previous tappings, without iodine being used.

"2. While the practice seems so far perfectly safe in itself, it has by no means proved successful, as in hydrocele, in preventing a reaccumulation of the dropsical fluid; for in several instances the effusion into the sac seems to have gone on as rapidly as after a simple tapping without iodine injection.

"3. But in two or three of the cases, the iodine injection appears to have quite arrested, for the time being, the progress

of the disease, and to have produced obliteration of the tapped cyst, as there is no sign whatever of any reaccumulation, though several months have now elapsed since the date of the operation.

"Lastly. Accumulated experience will be required to point out more precisely the special varieties of ovarian dropsy most likely to benefit from iodine injections, the proper times of operating, the quantities of the tincture to be injected, and other correlative points. Perhaps the want of success in some cases has arisen from an insufficient quantity of iodine being used, and from the whole interior of the cyst not being touched by it. The greatest advantage would of course be expected from it in the rare form of unilocular cysts. In the common compound cyst, the largest or most preponderating cyst is usually alone opened in paracentesis; and though it were obliterated, it would not necessarily prevent some of the other smaller cysts from afterwards enlarging and developing into the usual aggravated form of the disease."

Dr. C. Edwards, of Cheltenham, narrated in the *Lancet* for August, 1856, an interesting case of a multilocular cyst, in which he injected ten ounces of the Edinburgh tincture of iodine with success. In operating, he used the large-size trocar I recommended him in the consultation we previously had upon the case; and a No. 16 prostate catheter made for the purpose with a screw, so as to affix to it a gum-elastic bottle furnished with a stop-cock nozzle. The fluid evacuated from the cyst was very thick, viscid, and of the colour of mushroom catsup.

No pain was experienced from the injection, and the most prominent symptom subsequently was severe vomiting with prostration, demanding the free exhibition of stimulants.

A few other cases of the employment of iodine injections in ovarian dropsy are recorded in the medical journals (*e.g. Lancet*, 1857, vol. i. p. 605), but it would occupy too much space to cite them in the present work. I would, however, note that Mr. Spencer Wells has narrated (*Medical Times*) the history of four cases in which he adopted this mode of treatment, and of these three have remained well.

Case I.—J. S., æt. 40, admitted in Boynton ward, St. Mary's Hospital, under my care, on 5th March, 1857. When eighteen years old, she perceived her abdomen to become swollen, without pain, and the enlargement went on until she was twenty-five years old, when she was tapped, and between seven and eight quarts of clear fluid taken away. It has since this refilled, and causes her great uneasiness by its weight and pressure. Her general health has kept good.

March 11th. I tapped the ovarian cyst in the semilunar line, and drew off sixteen pints and a half of straw-coloured, slightly-albuminous fluid, and immediately afterwards injected six ounces of the tincture of iodine, made according to the Edinburgh College formula. No pain followed the operation; but, six hours afterwards, iodine was found in some vomit and in the urine. 12th. Suffered much from sickness, with prostration, and was ordered to take stimulants freely. On the 13th, she passed a restless night. From this time she gradually recovered, without any untoward symptom, and left the hospital, the sac being very greatly reduced, not containing more than a quart of fluid re-accumulated, which showed no tendency to increase. In bodily health she had much improved, and was daily acquiring strength. I have since frequently heard from this patient; she has continued quite well, and the sac remains inactive and not at all increased in bulk since she left the hospital.

Case II.—Miss C., æt. 26, of a delicate constitution, suddenly discovered an enlargement of the left side of the abdomen, which proved to be ovarian dropsy, and progressed so rapidly, that in the short space of six months it became imperatively necessary to relieve her by tapping, when about sixteen pints of highly albuminous dark fluid were drawn off. In six weeks after, the fluid had so re-accumulated that tapping was again called for; and seven weeks from the date of this second operation she came under my care, and was then suffering great inconvenience and distress from the abdominal distension.

The treatment by injection was mooted, and I then pointed out to the friends, that from the duration of the ovarian disease and its multilocular character, the probability of cure by any sort of treatment could not be anticipated, but that the one suggested, though attended by some danger, might render very material relief. Having left the decision in the hands of the patient and her friends, and got their assent, I injected the cyst on Nov. 13th, 1857, in the usual way, after tapping it completely, with five ounces of the strong Edinburgh tincture of iodine, and allowed it to remain. The patient was less affected than usual by the iodine, and though vomiting ensued and that substance could be detected in the ejecta from the stomach, it could not be found in an appreciable degree in the saliva and urine. Under the free administration of stimulants the patient was convalescent in four days, and in ten so much better in general health that she was able to go out in a Bath chair. The ovarian tumour was very greatly reduced, and so long as she was under my observation, there was no re-accumulation in the cyst which had been injected. Unfortunately I lost sight of this patient, and am therefore unable to complete the history of her case.

4. *Incision into the Cyst, and the Formation of a Fistulous Opening or an Artificial Oviduct.*

This ingenious and rational plan of treating ovarian dropsy with a view of curing it, appears to have been first contrived and practised by the celebrated French surgeon, Le Dran, who recorded, in a very graphic and interesting manner, his first conception of the plan and his experience of it in the *Mémoires de l'Académie Royale de Chirurgie*, and subsequently, more at large, in a work entitled *Plusieurs Observations et Mémoires sur l'Hydropisie encysté et le Squirre des Ovaires.* In the last edition of this book I deemed Le Dran's account of his cases of sufficient interest to quote it at length, but the press of new matter makes me forego its reproduction in this present one; I shall therefore only allude very briefly to it.

Reflecting upon the relief afforded by tapping, Le Dran thought that, if he could prevent the sac refilling, he might effect a cure, or at least prolong life. With this object he made (in 1836) an incision about four inches long through the abdominal wall and cyst, nearly in the median line, in a patient who had been tapped several times before; dressed the wound with pledgets of lint, and replaced the canula by a tube, made of sheet lead, proportionate in diameter to the size of the wound, through which the discharges from the cyst might drain off. As the wound contracted, he decreased the size of the tubes; and morning and evening had the sac injected, at first with detergent, and afterwards with stimulant lotions. At the end of five months the tube was dispensed with, and only a small fistulous opening was left, through which some drops of pus continued to ooze. But although the walls of the cyst approached, no union took place.

This sac, so destroyed, had, moreover, another attached to it, which at first felt solid, but afterwards inflamed and filled with pus, and was emptied by Le Dran by an incision carried through the abdominal wall, with which it seems to have set up adhesions. The patient survived, in good health, for four years.

In a second patient, evidently suffering with a compound

ovarian cyst, he pursued a similar plan, but at an earlier period, and suppuration went on so rapidly, with a corresponding rapid decrease of the cyst, that, at the end of six months, only a spoonful at the most escaped by the tube. For two years a slight discharge persisted, when one day, the patient having taken out the tube to clean, was unable to replace it, and in a short time the wound closed up completely.

Since Le Dran's time, incision into the cyst has been frequently practised not so often, indeed, with a curative purpose, as a casual matter, rendered necessary by the viscidity of the contents of a cyst preventing their escape through a canula, or by abortive attempts at extirpation, on account of the adhesions of the sac; and, as the fear was in such instances that the contents of the incised sac might escape into the peritoneal cavity and provoke peritonitis, the endeavour was made, as Kiwisch observes (*Op. cit.* p. 167), to establish an adhesion between the punctured place and the abdominal wall. This was done "either by the external application of caustics (Recamier, Tavignot, Pereira, and several others), or by the repeated insertion of several long needles in their circumference (Trousseau), or by the application of an instrument (Rambeaud), which fixes the cyst to the abdominal wall by narrow, feathery branches directed inwards, or by laying bare the cyst;" by cutting down through the abdominal wall to the cyst, and allowing it so to continue until adhesions are formed, when tapping or incision may be carried out.

In the last edition of this treatise I mentioned, from information kindly given me by Dr. Ferguson, that the operation by incision had been several times successfully performed in Paris, the adhesion of the sac to the abdominal parietes having been effected by pinning the cyst to them some days before making the opening. I also noticed its having been carried out in Germany and in America, in the latter country by Dr. Prince, of Missouri. Kiwisch furnishes other references, and after mentioning Delaporte, Velpeau, Portal, and others who have resorted to the plan in France, he alludes to a "case contained in the *Philosophical Transactions*, and a further one in the *Gazette Médicale de Paris*, for the year 1838. In the last

case the operation was performed by Dr. Mussey, in New York." Again, he tells us of Dzondi, Galenzowski, and Buhring having adopted this principle of treatment in cases where attempts at extirpation had been frustrated, and particularly cites Dr. Buhring as a defender of this mode of practice. This physician operated three times; twice in cases of compound cysts, in both of which death followed "in the course of some days," and once where the cyst was simple, and when the success was perfect and complete.

In January, 1850 (*Monthly Journal of Medical Science*, 1850, p. 179), I brought before the notice of the profession what I conceived to be an improvement upon this operation of Le Dran; the variation consisting chiefly in making the opening in the semi-lunar in preference to the mesial line, and in stitching the edges of the incised sac to the abdominal wall. I was led to propose this deviation by reflecting on a case published by Mr. Bainbrigge, of Liverpool, who had performed Le Dran's operation in two cases, the first of which, I believe, terminated fatally; but the second, subsequently published in the *Provincial Medical and Surgical Journal*, was successful. In the latter case, Mr. Bainbrigge made an incision in the median line, midway between the umbilicus and the pubes, intending to stitch the sac to the external wound, which was to be kept open by the introduction of a pledget of lint, so as to admit of continuous evacuation of the contents of the ovarian cyst as fast as formed. As it happened, however, Mr. Bainbrigge found the previous adhesions of the sac so complete, that the sutures proposed were unnecessary. The patient was then placed in a *prone* position, and so kept for some weeks. The result proved quite satisfactory.

It will be observed that here the prone posture was maintained (as necessary for a free escape of the discharge) for a lengthened period. Now, it struck me on reflection that such an operation might be performed with greater chance of success, and with much less inconvenience to the patient, by making the incision *laterally* in the semi-lunar line, where, indeed, I ordinarily introduce the trocar in tapping an ovarian cyst. An opportunity of carrying this idea into practice soon after

occurred to me, when the advantages I had reckoned upon were fully realized.

Case I.—Miss R., æt. 39, introduced to me by Dr. Richard Bright, came under my care in May, 1847, labouring under ovarian dropsy. The cyst was multilocular; one sac disappeared under the combined effect of tapping, mercurials, and pressure; but a second appeared six months afterwards, which was punctured, February, 1848, and yielded seven pints of a mucilaginous viscid fluid. The abdomen again enlarging in the following July, three cysts were punctured, the oldest one discharging a milky, highly albuminous fluid; the second, a transparent, but also albuminous serum; and the third, of small size, a non-albuminous fluid of a straw colour; the entire quantity evacuated amounting to eleven pints. Although relief followed, the cysts re-filled, and pain and other symptoms of suppurative inflammation supervened. At the commencement of October a fourth tapping drew off a clear, light-coloured, and afterwards an offensive purulent fluid, in all sixteen pints. After this, the accumulation of fluid returned with greater rapidity than ever, when, with the concurrence of Mr. Fergusson, I decided on the following operation:—

Oct. 11th. Assisted by that gentleman, and Mr. Nunn and others, and chloroform having been administered by Dr. Snow, I placed the patient in the horizontal posture near the edge of the bed, and made an incision two inches in length about half-way between the umbilicus and the anterior and superior spine of the ilium, dissecting carefully down to the peritoneum. I next made a second (shorter) incision at right angles with the first, extending from its lower termination inwards towards the median line. The flap thus formed was dissected back, exposing the peritoneum with the subjacent whitish cyst appearing through it. Introducing a large-sized trocar at the angle at which the two incisions met, I withdrew nine pints of fluid, containing pus and flocculent matter; and, before removing the canula, divided the peritoneum in the line of the longer incision; and having reflected it on each side, stitched the cyst to the tendon of the external oblique muscle, taking care not to include any portions of muscle or of peritoneum. The next step was to remove the canula, and, with a pair of scissors, to divide the cyst midway between the sutures; a piece of lint dipped in oil was then inserted and secured by strapping; lastly, the external wound was partially closed at its extremities by stitches.

For the first five days after the operation, the progress of the patient was very satisfactory; but on the 16th (the sixth day), a redness of the surface, extending from the wound to the back, became visible; and on the following day sickness occurred, and continued to do so subsequently. The discharge from the wound had previously been free, but I now thought it advisable to inject, twice a day, a portion of lotion containing two drachms of tincture of iodine to a pint of water; but the discharge becoming shortly very offensive, I substituted an injection of chloride of lime. At this period, much exhaustion and restlessness were present, together with frequent faintings and considerable dyspnœa, and the discharge from the cyst became most profuse, thus diminishing the little remaining power. The patient sank rapidly, and died on the 9th of November, a month after the operation.

A post-mortem examination was made on the following day in the presence of Mr. Nunn and other gentlemen. There was much emaciation.

On opening the thorax, the diaphragm was found to reach as high as the third rib, and the base of the heart to lie between the first and second ribs. The *right lung* was thrust upwards by the liver, which was raised to a level with the third rib. Firm and extensive pleuritic adhesions existed. The right lung contained more air than the left, which though crepitant, was much congested, and also contracted and shrivelled, each lobe being capable of containing but little air. Little or no fluid was present in the pericardium. The *heart* was very fat; the auricles remarkably small, as indeed was the entire organ. The right auricle contained coagula. The right ventricle was soft and flabby, whilst the left was thicker and harder than natural, its columnæ carneæ dense, and its chordæ tendineæ very firm and rigid. Valves healthy. The *liver* not only rose high in the chest, pushing the right lung up to, or above the third rib, but it was also much enlarged and rounded, the right lobe resembling in figure and size a fœtal head. Its parenchyma was highly vascular and exceedingly soft. *Spleen* normal; *stomach* much distended with flatus; *kidneys* very much enlarged, softened, pale, and easily broken down by the fingers. The *ovarian cyst* was found generally adherent to the abdominal parietes in the neighbourhood of the lateral incision. On removing the cyst, we found on its posterior surface an ulcerated opening of no very recent date, through which a communication existed with the interior of a smaller cyst, and through this with several others, also small, some of which appeared to have been more recently formed. The contents of these several cysts varied in character; some being dark, thick, and offensive, the lining membrane studded with ossific points; others, more recent, straw-coloured or purulent. *Uterus* normal, except at its posterior surface, where it was indurated by many fine nodules.

The issue of this case was unfortunate, but the untoward result offers no testimony against the propriety of the operation, inasmuch as it was a consequence of general bodily disease. The engorged and enlarged liver, the abnormal condition of the kidneys, the congested, puckered, and adherent lungs, compressed into half their original bulk, and last, not least, the diminished size and diseased condition of the heart, afford ample explanation of the fatal issue. The frequent faintings and dyspnœa, occurring upon any change of position or sudden movement, indicated serious organic changes in the chest, and a diminished power of the heart.

So far, then, from regarding the operation as the cause of death, we may assume that, taking into consideration the extensive and serious visceral lesions, the multilocular character and long standing of the ovarian disease itself, the debility of the patient, and the pressure sustained by the thoracic viscera, the operation was so far successful as that life was considerably prolonged by it; and had the powers of the patient been suffi-

cient, we may conclude that the cysts would have been destroyed by suppuration.

Case II. was that of a married woman, the mother of four children, who having been found to be labouring under ovarian dropsy by her usual medical attendant, Mr. Evan B. Jones, was seen by me in April, 1850.

I found that she had been tapped by Mr. Jones about seven weeks previously, immediately after the birth of her last child, when twenty pints of fluid were withdrawn. The sac had subsequently filled again very rapidly; she was compelled to keep her bed, but unable to lie down from fear of dyspnœa.

She stated it was several years since she detected a swelling in her right iliac fossa, that she was told it was ovarian dropsy. Since its appearance, however, she has had several children. After she was tapped, a hard body could be felt, apparently within the cyst.

On examination, the cyst seemed thin; and, deeper in the right iliac fossa, a solid tumour could be felt, which I thought might be an undeveloped or contracted cyst. Fluctuation was distinct.

This patient was most desirous that some further operation should be attempted, but her extreme debility and generally bad state of health promised but an indifferent or untoward result.

However, I determined to try the plan of making a lateral incision, and of stitching the sac to the abdominal wall. On the 18th, I accordingly proceeded to operate, assisted by Mr. Nunn, Mr. Jones, and Mr. Henry Smith. Having made an oblique incision, similar in position and size to the first in my previous operation, and thereby reached the peritoneum, I found it on almost every side adherent to the subjacent sac. Withdrawing about twenty pints of fluid, I at once proceeded to stitch the sac to the aponeurotic tendon of the external oblique muscle. This being completed, I opened up the cyst by scissors, midway between the stitches—just as in my former operation. On introducing my finger, I felt the solid mass (before detected from the exterior), which was yielding to the touch, and seemingly within the empty cyst, and was, in fact, an undeveloped cyst.

The following day she was doing remarkably well, and continued progressing favourably for a fortnight. Unfortunately, however, at the end of this period, having previously removed from her bed to the sofa, she exposed herself to wet and cold by lying close to an open window. The consequence was a severe cold attended with fever, which lasted several days. Then the abdomen began to enlarge in the region of the cyst, and the previously free discharge diminished considerably.

On introducing my finger into the wound, I found that adhesions had been set up between the walls of the cyst and the solid tumour contained in it: whereby the cavity of the sac was now divided into two compartments, only one of which could empty itself through the opening; the other had consequently become distended by the accumulation of its secretion. I was able, however, to break down these recent adhesions by my finger, giving liberty to the imprisoned fluid. To avoid the recurrence of this event I introduced a pledget of lint, so that it should lie across the tumour, or between it and the adjoining wall of the cyst.

From this period the patient went on remarkably well, suffering indeed every two or three weeks from attacks of bilious vomiting, with headache and prostration. At the end of May she changed her residence to the

west end of London, as more advantageous, and her health so improved, that she was enabled to take walking exercise almost daily.

In July the large cyst was extruded *en masse* through the external opening, in a putrid condition. After its separation it required much care to prevent the closing up of the wound; the discharge, too, was now trifling, and caused the patient no inconvenience. To keep the orifice free, a pledget of lint had to be introduced daily.

At this period the operation was considered by the several medical men who visited her (among whom were Mr. Fergusson and Mr. Ure) as perfectly successful. In fact, the patient walked about and rode several miles a day.

In August, Mr. Ure saw her, when she was suffering from one of her severe bilious attacks, and from the œdema of her face, surmised the existence of kidney disease. Her health, which had long suffered from her intemperate habits, now began seriously to give way: incessant vomiting would occur for three days together, and incomplete paralysis of the left side supervened. Some relief followed the use of general and topical bloodletting, but exhaustion soon more clearly manifested itself, and she sank, after having fallen into a comatose condition four or five days previously.

A post-mortem examination was made the next day, with the assistance of Mr. Nunn. The following are the notes made on the occasion:—Body well developed, with a considerable quantity of subcutaneous fat. No existing peritonitis apparent on opening the abdomen. The cavity of the pelvis contained an ounce and a half of puriform fluid, lying partly in front and partly behind the uterus. This pus had evidently escaped from the mass of the right ovary, the vesico-vaginal and recto-vaginal pouches being healthy.

A cyst capable of holding an orange occupied the right ovary, and was situated just below the broad ligament—its inner side within an inch of the uterus, its outer in contact with the brim of the pelvis. This cyst communicated by means of a fistulous canal, one inch and a half in length, with the external opening made in operating. The back and under part of the cyst was disorganized and soft, and at one part lacerated, allowing the free escape of its contents upon the slightest pressure. Through this lacerated opening, the puriform discharge in the pelvis had evidently escaped; and without doubt this laceration had occurred in the progress of the autopsy, for had it previously existed, the sac would have been much more completely emptied, and some signs of recent peritonitis have certainly been met with.

The left ovary and ligaments were healthy. The surface of the uterus was rather red and vascular, but unaffected by peritonitis. In the course of the fistulous canal were three or four small cysts varying in size from that of a currant to that of a grape. The structures about the wound and the fistulous canal were pale, firm, and healthy. The kidneys, soft, large, and pale; the liver remarkably yellow; the brain unusually pallid and soft.

That the case just recorded was (so far as the operation itself was concerned) successful, will, I think, be generally admitted. The fatal symptoms were other than those dependent upon the operation, and death did not take place till *four months after it*. The great sac had been entirely expelled, and we may conclude that if the patient's general health had not failed, it would have been followed by the discharge or destruction of the small one found after death.

Case III.—Miss W., æt. 41, was always observed to be of large size in the abdomen from her childhood, but enjoyed good health, with the exception of suffering occasional bilious attacks. In 1848, her health was not so good; there was much indigestion and gastric disorder, with a sensation of heat in her throat proceeding from the abdomen; but it was not till March, 1850, that she sought medical advice, at which time she consulted a physician, who declared her to be labouring under ovarian dropsy. She remained under that gentleman's care until June, her abdomen in the meantime increasing to double its former size. Wishing for further advice, she consulted another physician, who prescribed some medicines and recommended her being tapped.

In July she was visited by me, when I found her suffering considerably from the pressure of the ovarian tumour upon the thoracic viscera. The general appearance of the abdomen and careful manipulation, convinced me that this was a case of multilocular ovarian disease, with extensive and firm adhesions. The inference, therefore, was, that the operation of extirpation could not be resorted to, that pressure would be unavailing, and that the patient's condition demanded speedy relief. She had of late suffered frequent and severe pain in the right side of the tumour, and was herself most desirous to submit to an operation.

On the 1st of August, Dr. Snow having put her under the influence of chloroform, I proceeded to the operation, assisted by Mr. Nunn, and other medical friends. The incision was made in the left side, and in the usual position, and the peritoneum being reached and divided, I found very firm adhesions over its right side incapable of being broken down. The multilocular character of the disease, as previously diagnosed, was rendered evident, and two cysts were opened on the present occasion, and a highly albuminous fluid evacuated. Many other smaller ones were left untouched. I do not here recapitulate the several steps of the operation, which were in all respects the same as in the previous cases.

On the day following the operation, inflammation was set up in the sacs, but was recovered from in three days; bleeding and other antiphlogistic remedies having been employed. After the subsidence of the inflammation, she became free from pain and progressed favourably; expressed herself much relieved, took food, and was in good spirits. The wound also developed healthy granulations. In ten days more, however, the discharge became offensive, and its debilitating influence on the system manifested itself rapidly; the feeble powers of the patient not being able to sustain the drain, and the less so, on account of its unhealthy character, which tended to produce a typhoid state, in consequence of which she sank on the 25th of the month.

A post-mortem examination was made on the 27th.

On opening the abdomen, the cyst was found generally adherent on its right side, but free from adhesions behind. On attempting to rupture some of the adhesions low down, the walls of the sac gave way, and a quantity of pus escaped. The cyst rested by a broad base on the left ovary. The right ovary was enlarged, and contained a small cyst. The liver was adherent, and pushed upward to the third rib. The left lung was adherent to the pleura-costalis in its upper third. On cutting into the cyst, it was found to be made up of many, some large, others smaller cysts.

The cause of death in this third case must be admitted to have been exhaustion from the copious and offensive purulent discharge from the cyst, hastened in its operation by the debilitated state of the patient.

We must also attribute the fatal result in some measure to the circumstance of the discharge having become offensive, and the recognised noxious or poisonous influence exerted by any fetid collections of fluid within the body.

The state of the patient previously to the operation was such, that life could not have long continued, and I think that the operation itself, directly or indirectly, had little to do with shortening it.

In such inveterate cases, of long standing and multilocular, having extensive adhesions, and where the health is broken down, my present conviction is not to interfere by any operation.

Although the three cases last related terminated fatally from one unfortunate circumstance and another, yet the principle of the operation appears correct, and it has been carried into effect so often and with such an amount of success as to justify its repetition in appropriate cases, such as those where the adhesions of the sac are so extensive, so vascular, and so peculiarly situated that extirpation is contra-indicated.

At the same time it must be admitted that experience with the operation has hitherto been very discouraging, for its fatality has considerably exceeded that of extirpation, and no surgeon would be inclined to resort to it except after having found ovariotomy impracticable. The latter operation has this further advantage over incision into the cyst, that it completely eradicates the disease, which may under any other mode of treatment be reproduced by a development of fresh cysts.

Kiwisch, I find, entertains a similar opinion to myself relative to the comparative merits of the mode of operating under review. He remarks that it is an operation always dangerous to life, indeed, not less so than ovariotomy; and proceeds thus:—"In our opinion, therefore, the incision can only have a rational application in those cases in which extirpation is indicated, and which is impracticable in consequence of adhesions. These cases are also the most suited for incision because no previous precautions are required to unite the cyst wall with the abdominal parietes. At the same time it is still to be observed, that the operation is particularly suitable for simple cyst formations, or those nearly allied to them; and that the incision is to be made so extensive that the hand may be introduced into the cyst to make a more minute examina-

tion, and that a slight discharge of the contents may take place during the whole healing process. Dr. Buhring, therefore, attaches especial importance to the lateral incision of the abdominal parietes, so that the escape of the ichorous fluid shall be favoured."

I am glad to find, from this last paragraph, that my plan of making the incision laterally, published so long since as 1850, has the concurrence of this German physician, who has, to all appearance, arrived at the same conclusion as myself, but quite independently.

Precisely the same principle of treatment as that by incision has been carried out by operations of less severity, to establish a fistulous opening into an ovarian sac, through which its contents may constantly drain, and its destruction by suppuration be carried forward. Sometimes this opening has been made in the abdominal wall, but more frequently through the vagina or rectum; and the proceeding has been oddly designated "the formation of an artificial oviduct." The operation has been seldom practised in the abdominal wall. It has consisted in retaining the canula in the cyst after tapping has been accomplished. Kiwisch quotes a successful case in which this plan was adopted, recorded by Ollenroth, and Mr. Clay (his able translator) cites in a foot-note (*Op. cit.* p. 165) two instances communicated to him by Mr. Alexander Anderson, of London, in one of which there was recovery, after much suffering, whilst in the other death resulted a few weeks after the operation. "After death, the cyst was found contracted, empty, of the shape of a long silk purse, and adherent at its upper part to the omentum. No evidence of peritonitis having existed was discovered."

Mr. Anderson's comment upon his cases is, "On a review of these cases, there is little reason to recommend a repetition;" and Mr. Clay subjoins, "Other cases are recorded besides those mentioned, where this method has been employed, and although some cures have been obtained, the success has not been such as to recommend it as an operation for general adoption."

Kiwisch, too, joins in decrying it, and states his reasons as follows:—"As in this method it is very difficult to evacuate

properly the ichorous fluid formed under the influence of the air, which obtains an entrance, there is always a threatening danger of severe inflammatory irritation and extensive destruction of the cyst walls, which contain the ichorous fluid, and of the neighbouring structures; and there is also a danger of blood-poisoning. The proper shrivelling of the cyst is likewise long retarded, because it forms adhesions with the anterior abdominal wall. Hence the restoration of the ovary to its normal situation is either impossible, or effected with much difficulty, whereby the powers of the patient are easily destroyed. In the most favourable cases, gangrene attacks the anterior walls of the cyst and abdomen, and a wide gaping opening is formed for the discharge."

The reader will agree in the main with Kiwisch's objections to the proceeding, but it must be admitted that gangrene of the cyst and abdominal walls is not a necessary result, as represented, and that some of the other evils sketched by the able author are rather exaggerated, and might with equal justice be advanced against the plan of incising an ovarian sac.

Dr. Tilt has recommended opening ovarian cysts by Vienna paste, applied to the integuments in the median line, an inch or two below the umbilicus, or otherwise where the parietes are thinnest, and allowed to ulcerate through into the sac. The objects in view are thus stated:—1. To establish solid adhesions between the peritonæum covering the cyst, and that lining the abdomen. 2. To effect the smallest possible ulcerative opening of the cyst through the centre of these adhesions. 3. To keep the cyst always full, and only relieve it of the overplus of fluid by which it is distended. Abdominal pressure, gradually augmented, is indispensably necessary; and injections of tepid water to meet the third object of the treatment.

Mr. Grant Wilson was induced to try this plan of Dr. Tilt in a favourable case (*Provincial Medical and Surgical Journal*, Jan. 22nd, 1851), in which the health was remarkably good. The eschar was made about two inches below the umbilicus; one application of caustic was sufficient, but it was eight weeks before the eschar separated sufficiently to discharge the water. "At first no injection of any kind was used, but in three or

four weeks from the evacuation of the water the discharge became purulent and fetid, and my patient's health declined so rapidly that I feared I should lose her. Under a generous diet, with quinine internally, and the repeated injection of the cyst with warm water, she rallied, after having lain a month or six weeks longer in a very precarious state. At that time a weak solution of iodine (one drachm of the compound tincture to six ounces of water,) was occasionally used without producing any ill effect, and a portion of gutta-percha tubing was fitted to the opening of the wound. This was fitted with a wooden plug, so that the discharge could be drawn off at stated times. Before this the wound showed a disposition to close permanently, and required to be opened by a probe to evacuate the fluid that accumulated, the patient always suffering until this was done. From the time the gutta-percha tube was introduced, and the iodine injection used, the cyst began to contract and the patient to improve steadily, and this continued until she has now got quite well. The tube remained in four or five months, and was then removed. I have recently seen her, and there is still a small fistulous opening, not quite closed . . . . but a probe will pass in no direction beyond half an inch, and she has gained flesh and strength, and has been enabled to resume her usual habits. I think I am justified in calling it a cure, though I should scarcely be disposed, except under peculiar circumstances, to recommend a repetition of the treatment."

The formation of a fistulous opening through the vagina or the rectum has met with more favour. The operation *per vaginam* has, I understand, been several times performed at St. Bartholomew's Hospital with success. I regret I have not obtained the precise facts and statistics of those cases. That *per rectum* has also been resorted to in some instances, and obtained favourable results. My experience of these varieties of the operation in question has been limited; but I regard them, under circumstances such as above indicated, to be more desirable than tapping through the abdominal wall. Moreover, *cæteris paribus*, I prefer perforating the vagina.

However, the establishment of a fistulous opening through either of these canals will be of less extended application, and

only warrantable when the cyst is most evident in the recto-vaginal space, and is distinctly fluctuating, and where a long trocar and canula can be employed, and the latter be left. As to this requisite position of the cyst, it will be recollected that the direction of growth is rarely towards the recto-vaginal *cul de sac*. (See p. 297.) I have lately seen a case with Mr. Duffin, of Langham-place, in which the cyst was tapped *per rectum*, and the tube left in for a short time. No refilling took place, but the disease was found connected with malignant disease. Tapping through the vagina had been previously resorted to, and the cyst had refilled soon after.

Kiwisch (*Op. cit.* p. 138) has devoted a considerable space to the account of tapping ovarian cysts *per vaginam*, and the keeping them open by means of large tubes or canulas. He calls it his "method of radical treatment," and appears much pleased at his success with it.

He makes the puncture so large that the finger may be passed through it, and "after evacuation has been effected, a strong long uterine tube with a bulbous extremity is introduced into the cyst, and fastened in front of the genital organs, and left for several weeks, until diminution of the cavity of the cyst takes place, which process is accelerated by the daily injection of warm water."

This method, he says, "is generally applicable to moderately large simple cysts, which do not exceed the size of a large pregnant uterus, and can be reached from the vagina. Smaller cysts are obviously still more suitable to it as soon as they can be recognised." And further on (p. 144) he repeats that the operation "is only practicable in those cases where the cyst can be distinctly felt through the vagina; that it is particularly difficult when the vagina is narrow, and then must be performed with very great care, and even under additional unfavourable circumstances, as we experienced in one case, it may also have a fatal result."

The advantages are, that by tapping *per vaginam*, a more perfect evacuation of the cyst is "effected and maintained, and thus a dangerous collection of ichorous fluid prevented, and atrophy of the cavity essentially encouraged. The displace-

ment of the place of puncture is also not so readily produced in vaginal as in abdominal tapping; and the shrivelled ovary, after the completion of the case, is found nearly in its normal position, whence subsequent symptoms of dislocation and pathological adhesions of this organ are avoided." (p. 143).

Kiwisch gives particular directions for performing the operation, from which we perceive that he performed a preliminary tapping to assure himself that he had to do with a simple cyst, and in subsequently proceeding to open the cyst by a long curved trocar, had strong pressure made over the abdominal wall so as to render the sac more prominent in the vaginal wall. After evacuating the cyst his next step was to widen the opening, and to do so "introduced a long metal director, expressly made for the purpose, ... through the canula as deep into the cyst as it would go." The canula being withdrawn, a long, small, probe-pointed bistoury was passed along the director to enlarge the wound sufficiently to admit the finger to explore "the condition of the internal surface, and the length of the canal formed by the wound." After withdrawing the finger, the long tube before described was introduced deep into the cavity, and kept *in situ* by a T bandage.

After this operation, symptoms of inflammation of the cyst did not appear until the second or third day; but an ichorous discharge and great pain of the surrounding parts continued from ten to twenty days. "In favourable cases, these symptoms gradually gave way to a purulent discharge, which disappeared in from five to seven weeks, and then shrivelling and perfect obliteration of the cavity took place. . . . . It is not advisable to remove the tube until considerable decrease of the disease has taken place, because its reintroduction is very painful and difficult. . . . . During the greatest part of the treatment the patients were continually kept in bed, and placed under a careful dietetic regimen."

Kiwisch attempted to simplify this operation, but was not successful; but Schnetter, of New York, according to Scanzoni's notes on Kiwisch's work (p. 143, foot-note), improved upon it. This operator used a curved trocar, and having plunged it into the cyst, withdrew the stilette and introduced a knife through

the canula, curved to adapt it to this tube and furnished with a blade an inch and a half long, which could be pushed beyond the end of the canula. The knife and canula are then withdrawn at the same time, and the wound "dilated to such a size by pressure on the knife that a finger can be conveniently introduced. An elastic tube, about as thick as a finger, is then inserted, and bound without the genitals. We have now operated twice according to Schnetter's method, and consequently can recommend it from our own experience. But in order to prevent the turning of the knife in the canula, which easily takes place, and makes the incision difficult, we have had the canula made triangular, and the handle of the knife also receives a triangular form. Lastly, it is convenient to have the blade of the knife made as thick as possible to prevent any bending of it in cutting through the thick resisting tissues."

I do not find in Kiwisch's work a statement of the number of times he had resorted to the mode of treatment under consideration, nor of the relative amount of success he had obtained. This omission invalidates much his advocacy of the operation, which is chiefly grounded on theoretical considerations. I do not, indeed, wish to gainsay its utility, but to render it advantageous, we need assure ourselves of the simple nature of the cyst and of its accessibility from the vagina; for to interfere in the manner proposed with a compound cyst, or with one of such a character that its obliteration could not be effected, would render ulterior treatment much more difficult, and, on account of the situation and character of the adhesions set up, would interpose a fatal obstacle to extirpation.

Lastly, we obtain from Kiwisch's book a notice that Tavignot prefers an opening made *per rectum* in all cases in which a simple cyst can be reached through that canal. "Such cases happen, according to our observation, when, in consequence of the deep seat of simple or compound cysts in the recto-uterine *cul de sac*, the posterior wall of the vagina is much prolapsed and swollen, in which case the cysts are certainly more accessible through the rectum than through the vagina."

5. *The Excision of a Portion of the Cyst, or partial Ovariotomy.*

This operation for the cure of ovarian dropsy was first recommended and practised with success by Messrs. Jefferson, West, and Hargraves. It consisted in making a small opening, about an inch in extent, seizing the cyst, withdrawing the fluid, and excising as large a portion of the sac as could be drawn through the opening. It will be seen that this operation is applicable only to simple cases, and that the smallness of the opening precludes the possibility of ascertaining, during the operation, either the degree of vascularity of the cyst, or the extent of its adhesions. Reflecting that there is no greater danger in an opening of two or three inches than in one of only an inch, Mr. Wilson, of Bristol, proposed, and practised with some considerable success, a similar operation by a larger incision, which enabled him to tie all the larger blood-vessels ramifying in the cyst which were divided by the knife. To this plan I give the preference, for the above reasons, and for another not less important—viz., that it enables the operator, by taking out of the wound one or more pieces of the cyst, and cutting it or them irregularly, to avoid dividing the blood-vessels, and the consequent necessity for ligatures. Also, should necessity arise, it affords room and space to tie a bleeding vessel with twine, to cut it off very close, and leave it.

The excision of a portion of the cyst is an operation less formidable than complete extirpation, and less tedious in its results than the formation of an artificial oviduct. But it has a limited application. The conditions likely to favour its success are :—That the cyst be unilocular, its walls thin, and possessed of little vascularity, very few or no adhesions, and the fluid only slightly albuminous, and of light specific gravity. When these favourable circumstances coexist with unimpaired general health, or very little ailment, then only should this operation be performed. If pressure had been tried without success, or was interdicted by the existence of prolapsus uteri, or by any other objection, an additional reason to try this operation would exist. Now, by preferring the longer incision, and being prepared to extirpate the whole cyst if necessary, the surgeon will be able to

explore the parts and ascertain which operation is most eligible. For instance, if the walls of the cyst are found thicker and more vascular than was expected, it will be safer to proceed to extirpate the entire cyst, after tying its pedicle, than to run the risk of profuse hæmorrhage by cutting out a portion. Whereas, if the cyst be found to be thin, unilocular, unattached, and unvascular, and the fluid thin, then the plan of excising a portion may be adopted with reasonable prospect of success.

The operation consists in excising a portion of the cyst, returning the remainder into the abdomen, and then, closing the wound with sutures, to allow any fresh fluid secreted by the remaining portion of the cyst to escape into the cavity of the peritoneum, there to be taken up by absorption and discharged by the kidneys. This method of treatment was suggested to my mind (before I was aware that it had been previously practised) by reflecting upon the numerous cases on record in which spontaneous recovery has occurred after an accidental rupture of the cyst and subsequent copious discharge of urine. One case especially impressed me with the importance of attempting such an operation; namely, that of a young lady who had been long treated by Dr. Henry Davies for ovarian dropsy. In this case spontaneous bursting was followed by complete disappearance of the disease and non-recurrence of dropsy. She died ten years afterwards of inflammation of the dura mater. On the post-mortem examination it was found that the cyst had collapsed and shrunk, and that a fissure of some size existed, which was probably the original rent through which the cyst had burst.

The January (1851) number of the late *Provincial Medical and Surgical Journal* contained an interesting and highly practical communication from Mr. J. Grant Wilson, on the value of excising a portion of the cyst as a means of curing ovarian dropsy. He practised it in three cases, and in two was successful.

Unlike my proceeding, he advises the drawing out of as much of the cyst as can be readily extracted, without displacement of the other contents of the abdomen. He also makes it a principle of the operation to cut off the cyst, *not* close to the

wound, but from one and a half to two inches beyond it; so that when the portion of cyst has been removed, the cut margins can be carefully examined, and each of the vessels be secured by fine silk; and he directs the ends of the ligatures to be cut off close so that none may hang from the wound.

For the cases, which are highly instructive, I would refer my reader to Mr. Wilson's own description in the periodical named.

In one of Mr. Wilson's cases, the sac from which he had excised a large portion slipped back into the abdomen before he could tie its vessels, which were numerous and large, and by hæmorrhage into the peritoneal cavity acted as the chief cause of the fatal result. To obviate so disastrous an occurrence for the future, that gentleman contrived an instrument, having two branches, each seven inches long, which could be so screwed together as to hold the cyst firmly between them. Figures of this instrument are given in the journal quoted.

I have never felt the want of such an appliance, and should think it would be in the way of the operator. The vulsellum forceps and proper assistance are alone necessary to guard against an accident of the sort.

I shall first relate the particulars of one case in which the endeavour to imitate nature, by excising a portion of the cyst and leaving an opening in it, proved eminently successful. I shall then illustrate, by another case, the difficulties which may be encountered in this operation. The first case is thus related in the case-book at St. Mary's Hospital:—

Case I.—Jane T., æt. 47, admitted Feb. 13th, 1852, into the Victoria ward at St. Mary's Hospital, under Mr. I. B. Brown. She is a thin spare woman, of somewhat sallow complexion. She stated that the catamenia first appeared at the age of fourteen, after which they occurred at regular periods up to the age of nineteen, when she had a child; she believes she had a natural labour, and she got about in three weeks after. Since this, the catamenia having regularly appeared, the amount of secretion, however, has gradually lessened. About nineteen years ago, whilst lifting a heavy piano she strained herself, and soon afterwards prolapsus uteri came on; she then also noticed that her abdomen began to get larger; when the enlargement first appeared, it gave her the idea of a lump, commencing on the left side; three years ago she was in St. George's Hospital for eight weeks, and afterwards for seven weeks an out-patient, without deriving any benefit. During the last six months the swelling has increased much more rapidly; before that period the growth having been rather slow. At times has had shooting pains about the abdomen,

sometimes confined to the left side, and to the space between her shoulders. She has complete prolapsus uteri, which she has considerable difficulty in returning, the uterus coming down on the slightest movement, even on turning in bed. During her stay in St. George's, she wore pessaries. The abdomen is considerably enlarged; the tumefaction, however, does not extend uniformly and completely up to the scrobiculus cordis; percussion gives a dull sound over the front of the abdomen, but is resonant on the sides; less so, however, on the left than on the right. Fluctuation extremely distinct. The general health was attended to, and a cutaneous eruption which appeared was removed, and on March 10th Mr. Brown judged her to be in a fit state to undergo the operation.

March 10th. Having been placed under the influence of chloroform, an incision four inches long was made through the integuments along the linea alba, commencing about an inch and a half below the umbilicus. The transversalis and afterwards the peritoneum were then divided, and the cyst, covered by the visceral layer of the peritoneum, brought into view; its surface covered by ramifying vessels. The hand passed round the tumour encountered no adhesions. Cutting through the peritoneum, avoiding and pushing aside the vessels, the cyst was then punctured by a large trocar, and about sixteen pints of clear limpid fluid withdrawn, leaving a small quantity behind. Lastly, the cyst having previously been seized by the vulsellum forceps, a portion of it comparatively devoid of blood-vessels was cut out, its size being about four inches by three, but with an irregular outline. The omentum protruded a little, and had to be returned: the edges of the wound were then brought together with four or five interrupted sutures, care being taken to pass the needle deeply, so as to include the whole of the abdominal parietes, except the peritoneum itself, and to let the edges of the peritoneum come closely and evenly together. Two or three fine sutures were placed through the skin in the intervals between the deeper ones, so as to insure perfect union. She was ordered two grains of opium immediately, and one grain every three hours: a pad of wet lint was placed over the wound, and a broad bandage round the abdomen.

6·45 P.M. Has been sick; has little pain; pulse 110, full and strong, skin moist, lips rather dry. 9·40 P.M. Pulse 120, hard and jerking. Respiration thirty-two; some tympanitis and pain on pressure, greater in the left iliac fossa; some thirst; bled from the arm to twenty ounces; pulse was lowered to eighty; two grains of opium immediately. 12 P.M. Pulse 108, softer; respiration twenty-eight; less tympanitis. 2 P.M. Is asleep; has passed a nearly fluid, dark-coloured motion.

11th, 8·30 A.M. Pulse 110, rather hard; respiration thirty; there is more tympanitis, somewhat less tenderness on pressure; tongue rather white and dry; venæsection sixteen ounces; the pulse did not diminish in frequency, but became softer; five grains of calomel and two grains of opium immediately, and to be repeated in six hours if needful.

4 P.M. She has been asleep since the last note, and is so now. There is more tympanitis, but not much tenderness of abdomen; the wound looks quite healthy; pulse 120, full; tongue rather white and dry, with red edges; repeat the calomel and opium immediately; has passed about a pint and a half of high-coloured urine. 11·30 P.M. Much the same; pulse 108, rather hard; countenance placid, skin cool, tongue moister; bled from the arm to thirty ounces. Repeat the calomel and opium.

12th. Feels easier; pulse 100, strong; complains of flatus, abdomen tympanitic, wound healing by the first intention. Blood drawn rather

buffed and slightly cupped; skin moist. Citrate of potash twenty grains, carbonate of ammonia three grains, camphor mixture and water each half an ounce every five hours. Passed a pint and a half of urine. 11 P.M. Pulse 108, hard and jerking; more tenderness and tympanitis, tongue more furred in the centre; has passed a little more urine; respiration thirty-six. Bled from the arm eighteen ounces; pulse become softer, 128. Respirations thirty; less tenderness on pressure and on coughing. Repeat the calomel and opium directly, and in six hours.

13th. Has passed about a pint more urine, which is rather thick; specific gravity, 1022; not albuminous; its quantity greater than fluid taken. She has had a restless night; face flushed; tongue coated with a creamy fur; gums not much affected. She suffered greatly during the night from flatulence, which was relieved by passing a tube into the rectum. Pulse 120; respiration thirty; more tenderness and tympanitis; skin moist. Repeat the calomel and opium every four hours, and omit the mixture.

14th. Omit the calomel and opium. To have some strong beef tea. Pulse 108, easily compressible. A leather plaster was applied over the abdomen yesterday; there are now less distension and less flatus. Sutures removed; union perfect, except that one edge slightly overlaps the other; tongue clearing; has passed half a pint more urine than she has taken fluid.

15th. Abdomen getting quite flaccid; pulse 112, compressible, no tenderness. After the above, the bowels were relieved three or four times, which rather weakened her. Motions of a dark colour, and fluid; she has had some griping; tongue cleaner. To have port wine, two ounces, and a mutton chop. Take aromatic confection, twenty grains; sedative solution of opium, ten drops; sal volatile, ten drops; chalk mixture, one ounce every two hours. Quantity of fluid taken and urine voided, equal.

16th. Pulse 120; feels better; abdomen smaller; tongue much cleaner; bowels open once, no tenderness; urine voided, one pint, less than fluids taken.

19th. Pulse quiet, rather feeble; bowels regular. Fluid taken and voided equal. One grain of quinine, five drops of sulphuric acid, and one and a half drachms of tincture of cassia, and one ounce of camphor mixture three times a day.

20th. Abdomen getting quite flaccid; bowels open; tongue clean; looking much better. 21st. On the right side, and below the cicatrix, a solid, irregular substance can be felt, evidently the remains of the cyst. She is getting stronger.

25th. Has sat up daily for a time since the 22nd. To have one ounce of decoction of bark, and three grains of carbonate of ammonia, three times a day.

29th. The tumour not so easily felt. To have two ounces of compound senna mixture. Milk diet. April 3rd. No increase of abdomen; feels well; simple diet; mutton chop.

6th. Discharged.

Sept., 1853. She is still well, and equal to her duties as a servant.

April, 1854. Has during the past year gained in flesh and strength, and continues to perform her duties as a domestic servant.

Jan., 1861. Continues quite well.

It will be seen that acute inflammatory action was set up in

the cyst and in the peritoneum, and that the most energetic means were required to overcome the urgent symptoms.

This case offers some important practical points for consideration, which I shall very briefly notice :—

1. The nature of the cyst—unilocular.

2. Why not attempt a cure by tapping and pressure?

3. How do we explain the subsequent condition of the patient?

4. Why do we expect that the cyst will not refill, or, at all events, fluid collect in the peritoneum?

1. The cyst was evidently unilocular, and the walls thin; and it was also evident by the usual diagnostic signs, that there were no adhesions; *and on a small trocar being introduced,* it was found that the fluid was very slightly albuminous.

2. It was, in fact, just the case which I should have selected for the treatment by pressure; but this patient had so persistent a prolapse of the uterus, that the slightest exertion extruded that organ, and no perineal support would retain it within the vagina. I was therefore convinced that any well-applied pads and pressure would have the effect of increasing the prolapsus.

3. The remaining portion of the cyst in this patient after she was convalescent continued secreting, and as a certain quantity, about a pint, accumulated, it escaped into the peritoneum, absorbent action was set up by that membrane, and the kidneys excreted the fluid. This probably went on for some time, till the cyst became altered in condition, atrophied by a process of induration, and assumed eventually, it might be, a calcified character, and consequently a less amount of vitality.

4. It was, therefore, to be expected that the kidneys and peritoneum would continue to carry off the fluid secreted, and that the cyst would gradually undergo a process of degeneration as above alluded to; a result which has now been happily realized.

Case II.—E. H., a lady, æt. 58, sent to me by Sir C. Locock, the mother of several children, had a large mutilocular cyst. I dissected down to the cyst in the semilunar line, cut through its walls, which were very thick, and excised a portion. After the escape of a highly albuminous fluid, to the extent of twelve pints, it was found that a second large cyst

existed, the fluid of which I evacuated, and then closed the wound. A sharp attack of inflammation supervened, which was treated by bleeding, with calomel and opium, and the patient did well. The first cyst has collapsed, and is easily felt through the abdominal parietes; but the other has frequently filled. In 1854 it filled at a much slower rate; the patient was in good health, and able to walk and drive out as formerly. Although pressure was applied after each tapping, the decrease in the quantity of excreted fluid did not go on after 1854; on the contrary, there then commenced, as the subjoined table exhibits, a slight increase in quantity, which year by year became more pronounced and required an oftener repeated resort to paracentesis, until the summer of 1859, when the powers of the patient finally succumbed under the enormous drain of serous fluid from her system.

Up to a certain point the operation was successful in the foregoing case; the cyst which was submitted to it wasted, and had not a new one developed in connexion with it, which was not amenable to the same treatment, a successful result might reasonably have been expected. Even as it was, the relief to the patient was very considerable; for prior to it she was a confirmed and well-nigh helpless invalid, almost constantly confined to her bed; whereas after it she recovered so much in health and strength that she was able to get about with ease and comfort and to take exercise freely. In this comparatively satisfactory condition, moreover, she lived for eight years, for it was not until 1859 that there was any material deterioration in her condition.

This case has a further interest as showing the toleration of the operation of paracentesis and the enormous drain of fluid from the system, amounting in all to 1333 pints or 166 gallons.

The subjoined table exhibits the changes which occurred in the morbid activity of the cyst, and the total quantity withdrawn :—

	Tapping.	Pints.		Tapping.	Pints.
March 13th, 1851	1	39	March 27th, 1856	20	40
June 5th „	2	26	July 25th „	21	41
July 22nd „	3	26	Dec. 5th „	22	44
Sept. 26th „	4	30	April 6th, 1857	23	43
Nov. 12th „	5	28	July 4th „	24	44
Dec. 26th „	6	28	Oct. 15th „	25	46
Feb. 19th, 1852	7	28	Jan. 30th, 1858	26	48
April 15th „	8	24	May 6th „	27	50
June 19th „	9	23	July 30th „	28	50
Aug. 26th „	10	23	Oct. 23rd „	29	54
Oct. 25th „	11	24	Dec. 28th „	30	56
Dec. 23rd „	12	24	Feb. 22nd, 1859	31	56
April 1st, 1853	13	25	April 12th „	32	56
July 14th „	14	26	May 22nd „	33	57
Dec. 16th „	15	30	June 17th „	34	57
March 17th, 1854	16	30	July 25th „	35	50
Sept. 9th „	17	32			
April, 7th, 1855	18	37		Total.	1333
Oct. 1st „	19	38			

The operation of partial ovariotomy has also been performed by Mr. Crouch, of Bruton, Somerset, the particulars of which are published in the *Association Medical Journal* (Jan. 20th, 1854). In this case the cyst was very thick and vascular, and adherent to the surrounding structures in every direction. A portion of the size of a crown piece was excised with a large pair of scissors. "No fewer than seventeen small arteries required the application of a fine ligature silk. Suppuration occurred after the operation, which process continued until the period of her death, sixteen weeks after the operation. Her health had improved considerably before her decease, which was sudden and unexpected. The *post-mortem* examination proved that matter had escaped from the tumour into the peritoneal cavity, and the solid part of the cyst exhibited evident traces of cancerous deposit. The left ovary appeared healthy and only slightly enlarged. The uterus had a small fibrous tumour imbedded in its substance."

Mr. Clay, of Manchester, has in his elaborate appendix to Kiwisch's treatise collected the records of twenty-four cases of "partial excision of diseased ovaria," including mine; and states that of these ten recovered and fourteen died, statistics which certainly put this plan of operation in a very unfavourable light.

6. *Extirpation of the whole Cyst, or Ovariotomy.*

This has been looked upon as the last alternative; and the formidable and hazardous character of the operation has deterred most surgeons from attempting it.

I do not profess to give a history of the operation of ovariotomy; but may state, generally, that the idea of the entire removal of the dropsical cyst occurred to several of the older surgeons, among whom were Bonetus, Delaporte, and Van der Haar; but was opposed by Morgagni, Sabatier, and others. The first who attempted extirpation appears to have been Aumonier, of Rouen, in 1782, and he was successful. Of later celebrities in favour of it may be mentioned Dieffenbach, Martini, Siebold, and Lizars; and, on the other side, Sir C. Bell, Liston, W. Hunter, and Seymour.

At the present day, I think I may safely state that the number of those who recognise ovariotomy as a legitimate operation is on the increase; and, undoubtedly, it is more frequently than ever performed. It would be useless here to enumerate the whole array of names of those who have practised the operation, or who approve of it; but in my ensuing observations on its expediency, the opinions of several distinguished surgeons will be referred to. I may at once advance the proposition that, even if the authorities in favour of ovarian extirpation were less numerous and less eminent than they are, the statistics of the procedure would commend it to our attention, as one far more satisfactory than are several others unanimously approved of by surgeons.

This point was well put forward by Mr. G. Borlase Childs, in a paper read before the Medical Society of London (in 1854), and in which he remarked that the mortality after ovariotomy could not be considered large, when it is remembered how common it is to delay the operation till the last; and that errors in diagnosis sometimes committed, form no argument against the operation. Mr. Fergusson, no mean authority, in his work on *Practical Surgery* (3rd edition, page 792), says, "My personal experience in the operation last referred to (ovariotomy) has been comparatively limited; yet, though prejudiced against it in my early education, I now feel bound to state that the removal of such formidable disease by one or other of the various proceedings as first executed in this country by Mr. Lizars, and now practised by Dr. Clay, Dr. F. Bird, Mr. I. B. Brown, Mr. Walne, and others, is not only justifiable, but, in reality, in happily selected cases, an admirable proceeding."

The whole question of operative interference was very fairly stated in an article in the *Medico-Chirurgical Review,* written by Dr. Fleetwood Churchill as a critique on Dr. Robert Lee's recent work *On Ovarian and Uterine Disease.*

The remarks of the able reviewer are so apposite to my present purpose, that I shall here reproduce most of them. He writes: "The objections to the operation adduced by Dr. Lee are,—1. The great mortality, which, according to his tables, is 1 in $2\frac{1}{4}\frac{8}{4}$. 2. The extreme difficulty of diagnosis, so as to be

sure the case is one which will offer no obstacles to the removal of the tumour. 3. The possibility of prolonging life considerably by other means. To this it is answered by the advocates of the operation :—

"1. Undoubtedly the mortality is very great—1 in $2\frac{18}{12}$ according to Dr. Lee, 1 in 3 according to others; but a mortality nearly, if not quite as great, is not considered a fatal objection to other operations. If we take the major amputations of the limbs (primary and secondary), it appears that in Paris, according to Malgaigne, the mortality is upwards of 1 in 2; in Glasgow, it is 1 in $2\frac{1}{2}$; in British Hospitals it is 1 in $3\frac{1}{2}$. As to amputation of the thigh, Mr. Syme observes—'The stern evidence of hospital statistics shows that the average frequency of death is not less than from 60 to 70 per cent.' Of 987 cases collected by Mr. Phillips, 435 proved fatal, or 44 per cent. Mr. Curling states, 'On referring to a table of amputations in the hospitals of London, performed from 1837 to 1843, I find 134 cases of amputation of the thigh and leg, of which 55 were fatal, giving a mortality of 41 per cent.' Of 201 amputations of the thigh, performed in the Parisian hospitals, and reported by Malgaigne, 126 ended fatally. In the Edinburgh hospitals, 21 died out of 43. Even if we take much larger numbers, we find the mortality very high. Dr. Inman has collected 3586 cases of 'amputation generally, primary and secondary, for accident or disease, and the deaths are 1 in $3\frac{1}{10}$.' In 4937, published by Mr. Fenwick, the mortality is 1 in $3\frac{1}{15}$.

"The result of amputation at the hip-joint is still more unfavourable. Mr. Sands Cox has shown that of 84 cases, 26 were successful, and 58 unsuccessful.

"Again, take operation for hernia. Sir A. Cooper records 36 deaths in 77 operations; and Dr. Inman, 260 deaths in 545 cases. Or, the ligature of large arteries, of which Mr. Phillips has collected 171 cases, of which 57 died; Dr. Inman, 199 cases, of which 66 died. Of 40 cases of ligature of the subclavian artery, 18 proved fatal. Ligature of the innominata has, we believe, been fatal in every case. So that, taking the mortality at Dr. Lee's estimate, it is not higher than that of other operations, which are admitted to be justifiable notwithstanding.

"But although these figures show that as high a mortality occurs in other operations as in ovariotomy, we beg to remark, that the necessity for the operation is much more urgent in the former. In many cases it is the alternative of immediate death. Further, the operation of ovariotomy is of two kinds—by the long and short incision; and the advocates of the latter point to their statistics, which give a mortality of 4 in 23 cases, or nearly 1 in 6; whilst according to Mr. Safford Lee's tables, that by the long incision is 1 in 3.

"2. The errors in diagnosis have been very great, and the fair inference therefrom is, that the diagnosis is difficult and obscure. But, unless it can be proved that all improvement in this department is impossible, it is clear the argument cuts both ways. If the present deficient diagnosis entails an increased mortality, it is certain that every improvement will by so much reduce it. And we can see that it is possible that this may occur; for if all who have operated had the means of adequately ascertaining the actual presence of a tumour, of being sure that it is an ovarian, of determining the amount of adhesions, and had been sufficiently attentive to the constitution of the patient—it is clear that many of the recorded operations would never have been undertaken, and equally clear that many of the deaths would have been avoided, as a cursory glance at Dr. Lee's tables will prove. Moreover, it seems highly probable that a more accurate knowledge of the contents of these cysts may lead to important results as to the selection of the more promising cases for the operation, which may yet further diminish the mortality; and, lastly, it is quite possible that some beneficial modification of the mode of operating might be adopted.

"3. With regard to the prolongation of life by palliative treatment and repeated tapping, it is not easy to estimate the exact gain: it would have been a valuable argument if Dr. Lee had given us a collection of cases to show the amount of prolonged life thus obtained. If the patient be otherwise in good health, and the ovarian tumour increase very slowly, it is true that years may elapse, under careful treatment, without much distress, or any necessity for measures involving risk. In such

cases, life will be best prolonged by letting the patient alone. But with those that increase rapidly, and to such an extent as to occasion inconvenience and distress, or to threaten life, something must be done to afford relief, and tapping has been the ordinary means. We have, however, but few statistics to show the results. . . . . .

"From this brief summary it appears, that the admissibility of the operation will depend, not so much upon the rate of mortality hitherto, as upon future improvements in diagnosis."

In the main, I cordially agree with the foregoing observations and arguments of Dr. Churchill, and will add, that much has been done since they were written to improve our diagnosis of ovarian dropsy, to enable us to select from the various forms of ovarian tumours those in which ovariotomy is a suitable operation, and, in general to lessen the danger of committing those grave errors of which many of Dr. Lee's collected cases afford examples. Of this, indeed, we shall presently obtain proof from more recent statistics.

Indeed, in forming an estimate of the value of Dr. Lee's tables, or, indeed, of any tables of cases operated upon several years since, it must be remembered that not a few of the cases occurred some twenty or thirty, or even more years ago, when pathology was more crude, surgery less perfect, and many sources of diagnosis now resorted to, altogether unknown. For example;—the stethoscope, the uterine sound, the speculum, and the exploring needle, are recent inventions; so—be its value what it may—is the achromatic microscope, as applied to pathology and diagnosis. Then again, I may safely affirm, that manual exploration of the pelvic viscera was not carried out twenty years ago with the same care and discrimination as at present; and lastly, the lesions and the displacements occurring in the pelvic organs were, at the best, imperfectly understood.

Further, the surgeons in these earliest cases had not the benefit of example and of the recorded experience of others in their operations; and surely as modern surgery has advanced,—especially in the matters of dressing and after-treatment,—present and future operators and patients may anticipate more favour-

able results from ovariotomy. Lastly, we must not ignore the fact that the modern operator has a great advantage over his predecessors in possessing the valuable aid of anæsthetics.

These ancient examples will therefore be surely not deemed of much weight in forming a correct appreciation of the operation of extirpation as it would be carried out at the present day.

The value of Dr. Lee's table of cases will appear still less, when we reflect on the circumstances under which the operation has frequently been performed. Setting aside those in which the diagnosis was faulty from want of sufficient attention or experience, some underwent the operation as a *dernier ressort;* others with constitutions broken by the long continuance of the malady, or by the existence of malignant disease, or by the drain of albumen from the system by repeated tapping; and, speaking generally, ovariotomy has been very indiscriminately performed, and regarded as only a desperate remedy.

Since this critique on Dr. Lee's tables was written, a most complete and carefully compiled body of statistics has been published by Mr. J. Clay, of Birmingham, as an appendix to his translation of Kiwisch's oft-quoted work. I will make no attempt to follow him in his elaborate *resumé* (for any one interested in this matter will procure a copy of the work referred to), but will content myself with a very brief quotation, conveying the grand results arrived at:—

"The tables show one fact, and which strikingly illustrates the advisability of the performance of the operation; and that is, out of 395 completed operations, 212 resulted in recovery. This is the more gratifying as in many of the successful cases remedies were used previously to the operation, and different operative procedures adopted with the hope of curing the disease, or of arresting its progress, but without success; and in many cases death was imminent. These cases of recovery may therefore be regarded as triumphs of surgical skill, by means of which so many lives were secured, in several instances for years, which would otherwise have been lost to society."

Mr. Clay thus concludes:—"From a careful review, therefore, of the whole of the facts connected with the operation of

ovariotomy, I have no hesitation in expressing my opinion that the operation is to be highly recommended in ovarian tumours under the circumstances previously narrated, as it is the only mode of removing a disease incurable by any other means."

I think I am safe in saying that the success of the operation of extirpation is relatively greater within the last five years than at any previous period; and even the statistics of Mr. Clay, embracing as they do operations performed so far back as the close of the last century, do not in their results convey a correct impression of the comparative success now-a-days achieved. To quote, for example, Dr. Clay's (of Manchester) experience, as kindly transmitted to me, he has had in all 105 cases, of which 73 were cures and 32 deaths—a result that speaks much more in favour of the operation than do the statistics before quoted. Again, Mr. Spencer Wells, in less than three years, has operated 22 times with only 7 deaths; and it will be observed, in my own experience in the "London Surgical Home," in less than three years I have performed 9 operations with only 3 deaths (p. 383). The great difference between these results in the Home and in private practice is most marked, and I attribute it to the more perfect nursing in the former than in the latter; and in regard to the three fatal cases it will be evident that they were most unfavourable for operation.

Conditions rendering the Operation of Ovariotomy justifiable.

The surgeon should be satisfied, by most careful and repeated examination, 1, that the tumour is ovarian, and those with whom he may consult should take equal pains to form an unbiassed opinion.

2. That the tumour is increasing, and is a cause of annoyance and suffering to the patient, and that it will progress to a fatal issue if allowed to take its course. It is not always the large size only of a tumour which demands its extirpation; for sometimes comparatively small tumours are by their situation and connexions the cause of so much disturbance of function—as, for example, of the evacuation of the bowels and bladder, and,

by sympathy, of the digestive process and appetite, that their removal becomes necessary for the welfare and life of the patient.

3. That such of the different modes of treatment already described as appear to be suitable to the case, and are not incompatible with a subsequent attempt at extirpation, have been fairly tried without lasting benefit. Of those operations more especially incompatible with subsequent extirpation of the cyst, are partial ovariotomy, or the excision of a portion of the cyst, and incision into the cyst with the view of promoting its destruction by suppurative inflammation.

The propriety of attempting a cure of ovarian disease by less severe measures than ovariotomy is most evident in the case of simple cysts, for which tapping with pressure is the appropriate remedy.

4. That the tumour is not cancerous.

The diagnosis of the cancerous nature of an ovarian tumour, or of the invasion of cystic disease of the ovary by cancer, is undoubtedly difficult, and at times, perhaps, impracticable. The symptoms of ovarian cancerous growths I have already noticed (p. 291 and p. 307), and need not repeat them here. A well-grounded suspicion of malignant disease, based on the general aspect of the patient, on the rapidity of growth of the tumour, on the severity of the symptoms, and on the existence of cancerous disease in other parts, and in the patient's family, will deter the operator from meddling surgically with an ovarian tumour.

5. That the patient is not so reduced in her general health and vigour as to render her an unfit subject for a formidable operation. (See also further, p. 383.)

In too many cases, as already intimated, extirpation has been resorted to in desperation, when the powers of life have been fast ebbing, and evidently unable to sustain the shock of a much less severe operation than the one carried out.

The existence of adhesions, unless very soft and readily broken down, or thin and non-vascular, and therefore easily cut through, was formerly considered a reason for abandoning the operation of extirpation. But at the present time surgeons are

bolder, and rarely find an obstacle to the completion of the operation in the adhesions about an ovarian sac, but break through them with the écraseur, or divide them by a knife or scissors after tying them, if found vascular.

Nevertheless, adhesions may be so strong, so extensive, and so placed, that a judicious surgeon would not run the risk of attempting the removal of the whole tumour, and in such cases might advantageously resort to one of the other modes of treatment described. The circumstance of the pedicle being very short and broad constituted another impediment to completing the extirpation of a cyst; but it is one that modern surgeons would rarely allow to frustrate their attempt, or make it unjustifiable.

The conditions being found justifiable, the next question is, at what stage of the disease should the operation be performed? Should we wait till life is brought into immediate and imminent danger, so that any measure, however desperate, may be justifiable which presents the faintest prospect of affording relief? Or should the earliest period be chosen after the necessity of the operation has become unequivocally apparent? On this question, a variety of opinion exists; some of the advocates for the operation only approving of it as a forlorn hope; others, believing that it is by far the *most merciful* plan of treatment *if adopted early*, and that the reasons for running the risks will be much the strongest in the case of a young, healthy person, whose life, if spared, might be long and valuable. For my part, I adhere most strongly to the latter opinion. I consider that the risks of the operation become greater every year the disease exists. The tumour, its coats, and pedicle, are always growing, its chances of contracting adhesions are multiplied, and the patient is getting older, and most probably less able to endure the shock every year she lives. Indeed, I should as soon be persuaded to delay the operation for strangulated hernia till the symptoms of approaching gangrene became apparent, as to delay to extirpate an ovarian cyst, when I had once determined that it must be done. I believe that if recent, and otherwise favourable cases, were selected for operation, the mortality would be very small. This opinion I give advisedly, after a thoughtful review of all the cases on record, as well as of

my own. After tapping and pressure have failed, and the cyst begins to fill, the chances of success in ovariotomy, as well also as in the other operations described, will be, *cæteris paribus*, determined by the promptness with which the operation is performed; and it is very important that it should not be deferred till the strength of the patient is exhausted by the disease, or until abdominal or pelvic mischief has been done by the weight or pressure of the tumour. I therefore differ from those who advise that no operative procedure take place, until the tumour seriously interferes with the healthy action of the abdominal organs.

In a paper read before the North London Medical Society by Mr. Erichsen (*Association Medical Journal*, 1854, p. 37—39) that intelligent surgeon strongly advocated the contrary practice. He recommended "palliative treatment, until the growth has begun to interfere seriously with the comfort of existence, or *with the healthy action of the abdominal organs*. When these injurious effects of pressure," he continues, "have once fairly begun to manifest themselves, the patient wasting, suffering much discomfort from her size, with difficulty in breathing, repeated vomiting, gastric irritation, &c., then the question of relief from operation will necessarily obtrude itself. . . . . It is proper to perform it when all other means of relief have failed, and when *the patient's health is giving way under the extension of the disease*." This certainly is not the rule by which Mr. Erichsen, or any other experienced surgeon, would be guided in a case of strangulated hernia, fistula, polypus uteri, or in short, in any other disease, the tendency of which is from bad to worse, and which ultimately may be expected to destroy the health and life. The operation should be performed, not when there is but one chance in three, but when, with proper precautions, there are twenty chances to one in its favour.

Preparations for the Operation.

As all important operations are liable to fail from the neglect of little things, both in preparatory proceedings and in the operation itself, the following suggestions, all of which are really of moment, may be useful to those who are about to operate for the first time.

1. If the weather be cold, the patient should have, ready to wear, a flannel waistcoat and a pair of flannel drawers: the waistcoat should be put on before the operation.

2. She should have a warm bath, repeated on several occasions before the operation, to cleanse the skin, and thereby insure free perspiration after the operation.

3. The bowels should be opened by a dose of ox-gall or castor oil, and an enema, on the morning of the operation-day.

4. A hot-water bottle should be prepared for her feet.

5. There should be a thermometer in the room, and the temperature should be kept systematically at not lower than 66 degrees, nor higher than 70 degrees. A kettle should also be boiling on the fire, so as to make it possible to insure a degree of moisture in the air by the steam. This is especially requisite when the wind is in the east, or the weather hot and dry.

6. If the operation take place on the bed which the patient is afterwards to occupy, the lower part of it should be prepared and guarded by a macintosh sheet and an old blanket, which can be afterwards removed. There should be a hassock or stool for the feet to rest upon. The feet and legs should be clothed in warm stockings, and the hands and arms enveloped in a warm flannel gown.

7. As the patient will have chloroform administered, she should not take any food for some hours previous to the operation; and to avoid sickness afterwards, a supply of ice should be procured for her to suck for two or three hours *before the operation*. This is of much consequence.

8. There should be plenty of hot water in the room, in which in cold weather, both the operator and his assistants should immerse their hands before touching the patient; and there should be from three to six basins of warm water ready for immersing sponges or warming the flannels, &c.

9. The duties of each assistant should be clearly assigned and understood before entering the room, so as to avoid confusion, and also to *save time*, an important point when the peritoneum is exposed.

10. Long needles like those used in operating for ruptured perinæum should be at hand, armed with metallic sutures.

No interrupted sutures are required. Several smaller ligatures for blood-vessels should also be ready; and a flannel bandage to go round the abdomen after the operation is completed; also a supply of lint and a few adhesive straps.

11. *Instruments.*—One or two scalpels, a pair of scissors, a pair of vulsellum forceps, a pair of good common forceps, tenaculum, trocar and canula of large size, together with the needles and ligatures, and clamps, should be ready on a tray.

Lastly, as much will depend upon the after-treatment, it will be well to arrange beforehand that the operator, or some other competent surgeon, should remain with the patient all night, unless there is an experienced nurse to be relied upon. Indeed, she should not be left for more than two hours at a time for the first three or four days.

Mode of Operating.

The patient being placed conveniently on her back, and brought under the influence of chloroform, an exploratory incision, from two to three inches in length, should first be made in the linea alba. Having divided the peritoneum and reached the cyst, two or more fingers should be passed over its surface to ascertain if adhesions exist;—if these are slight and recent, they should, if possible, be broken down by the fingers; or if they are larger and stronger, they may be divided by the écraseur, or if vascular, after being ligatured, may be cut through by the knife or scissors. However, cases now and then occur in which adhesions are so firm and vascular and so extended, or so peculiarly situated, that it is not prudent to endeavour to detach the cyst, and then we must desist from the operation of extirpation, and substitute for it one of those other plans of treatment above considered—such, for example, as the excision of a portion of the cyst, if, that is to say, it is not deemed more expedient to desist from any further surgical procedure.

The presence of adhesions, and the necessity of dividing them, involve an enlargement of the primary incision, a measure otherwise indeed necessary to the further carrying out of the operation. An incision of four inches may suffice, but a longer

one is often necessary; and on this matter of the length of incision, the operator must be guided mainly by his own judgment of what is necessary to enable him to detach and remove the morbid mass with the greatest facility.

The next step is to tap the cyst or cysts, with a proper trocar and canula, and in the evacuation of the fluid to take care that none of it escapes into the cavity of the abdomen. Then, if there is only one cyst, and that not thick nor vascular, a portion of it only may be excised, in the manner described in the section "On Excision of a Portion of the Cyst." If the cyst, however, should be found to be thick or vascular, or multilocular, it will be the safest procedure to have recourse immediately to complete extirpation in the following manner. The pedicle of the tumour is to be taken in the left hand, and gently drawn outwards from the pelvic cavity,—an assistant carefully keeping back by warm flannels the bowels and omentum. The course of the blood-vessels in the pedicle should now be carefully observed, so that the latter can be safely punctured by a scalpel or bistoury, and through the opening thus made an aneurismal needle, carrying a double ligature of the strongest twine, be passed, and firmly tied on each side of the pedicle. Mr. Wilson advises, that instead of passing a ligature round the pedicle, each vessel should be tied separately. This some regard as an important improvement. The ligature should be passed as near to the tumour as possible; so that, by the entire length of the pedicle being preserved, the ligatured end may be kept external to the abdominal cavity together with the ligature, as recommended by Messrs. Duffin and Erichsen. This done, the tumour should be removed by dividing the pedicle half an inch from the ligature, which should be given to an assistant and held at the inferior end of the opening. The operator then closes the wound—and this, I need hardly say, should be done, as in all operations exposing the peritoneum, as soon as possible—by introducing deep metallic sutures about an inch from the incised edges, and about half an inch apart, through the parietes of the abdomen, taking care to avoid the peritoneum.

Mr. Spencer Wells, and some few others, however, recom-

mend the sutures to be passed through the cut edges of the peritoneum; but I still adhere to the practice above advised, and in this matter I am borne out by the opinion of Dr. Clay, of Manchester, who, in reply to my inquiries, thus writes me: —"As to ligatures, or rather sutures through the peritoneum, I am altogether opposed to them, and believe such a mode would greatly increase the mortality of any operations; besides, I see no advantage to be gained by it."

Where the pedicle is long, I prefer, instead of passing ligatures around it, to secure it by a clamp, and find the common calipers, used by carpenters, the best suited for the purpose. When this plan is adopted, the pedicle is let hang externally from the wound. The advantages it offers are—that the calipers can be removed after from two to four days; the wound heals more quickly, and the patient may get convalescent in two or three weeks; whereas, where ligatures are applied as usual, they take at the very least nine or ten days, and now and then as many weeks, to come away, and while they remain, the patient cannot be considered completely cured. The long persistence of ligatures is due either to too much tissue having been taken up between them, or to their not having been drawn sufficiently tight. Dr. Clay, of Manchester, used Indian hemp ligatures for tying the pedicle, and returned them into the abdomen. If the pedicle be short, then the clamp is not available, and ligatures must be used; because the swelling of the abdomen from peritonitis, or a tympanitic condition however produced, as well as the efforts of vomiting, cause the dragging of the pedicle, and induce pain and increased disturbance of the abdominal viscera.

When a clamp is not used, it is usual to employ means to prevent the ligatures returning into the abdomen. For this purpose, a common director, with its convex surface turned towards the abdomen, should be passed through the ligatures, so as to be firmly held by them at right angles to the wound. The ends of the ligatures should now be secured to the abdomen by adhesive plaster, and the wound dressed with common water-dressing. This done, the abdomen must be supported by a many-tailed flannel bandage, comfortably tight, the patient be

placed in bed, and warmth applied to the extremities. I was formerly in the habit of giving opium after the operation, but I do not now, except there is much pain, as it has appeared to me to have been the cause of harassing sickness and vomiting, and of other untoward conditions. Ice, milk, barley-water, or weak broths, should constitute the diet for the first forty-eight hours; afterwards stronger animal broth may be allowed, and wine, if the condition of the patient admit of it. It is better, if possible, that the bowels should be confined for four or five days after the operation; and, if opium be considered necessary for this purpose, it is better to introduce it *per rectum*, in small doses, for by this plan the danger of nausea and vomiting after its use is avoided. The bladder should also be emptied every six hours by the catheter. The temperature of the room should be carefully maintained for the first week after the operation.

I have not enjoined the use of any particular length of incision; for this matter must, I am of opinion, be regulated by the special circumstances of each case; the rule on the surgeon's part being to extract the cyst with the least danger to the patient, and through the smallest practicable incision without incurring a risk of failure in the operation. A small incision, of an exploratory nature, should be the first; if the operation be proceeded with, it must be enlarged sufficiently to admit the extraction of the apparent cyst, and further increase will be very easy, if its peculiarly compound nature, its position or relations, or other circumstances demand it.

The long, the median, and the short or small incisions, have each had their advocates, and their relative advantages been hotly debated; and statistics have been adduced to show that fewer deaths attend this or that length of incision. Such discussions I regard as of little moment, and the attempt to fix a certain length for the abdominal section in all cases as frivolous. As well might operative surgeons debate on, or endeavour to fix, the exact number of square inches the flap of an amputated limb ought to have, without reference to the muscularity or fatness of the extremity, or to any other special circumstance which ought to weigh in the management of each individual case.

It is desirable, when the diseased ovarian mass of one side is removed, and before the abdominal incision is closed, to look at the condition of the other ovary, which not uncommonly is also diseased, and when such is the case, may be at once removed. An instance of this sort is described by Dr. Peaslee, in the *American Journal of Medical Science* for April, 1851, in which a cyst, the size of a pullet's egg, was discovered on the right ovary, and the whole organ was diseased. A double ligature was passed through the broad ligament, and the ovary removed; the ligatures were drawn out through the wound at the nearest point. Two other examples of disease affecting both ovaries, and in which I extirpated both, are hereafter recorded. (See Cases XIV. and XXVI.)

The dangers to be apprehended after ovariotomy are—*a*. The shock of the operation; *b*. Hæmorrhage; *c*. Acute inflammation—peritonitis; *d*. Inflammation of a low or typhoid character; *e*. Pyæmia.

a. Now that we have the benefit of chloroform, the dangers from the shock of the operation are greatly lessened. But in some of high nervous susceptibility and debilitated frame, the shock may be fatal or severely felt, even although chloroform has been employed during the surgical proceedings, and the patient has not regained consciousness until they are over and the wound dressed. Like similar cases under other operations, these demand the use of stimulants, and other means of support.

b. Hæmorrhage is, unfortunately, not so uncommon; and the source of it is mostly from the cut pedicle or supporting base of the tumour. It will be seen, however, that in one of my cases the fatal bleeding proceeded from the divided vessels of an adhesion; and it is this event which has induced me to recommend the tying of any divided bands of adhesion where they have any thickness, and do not readily break down before the finger. The tying of the stalk of the tumour, as I advise, will, I think, generally provide against hæmorrhage from it, care being taken to leave the end of the pedicle out of the wound. Hæmorrhage may kill either by the exhaustion immediately induced, or by the peritonitis it kindles.

c. Acute peritonitis in a more or less severe form is a most

frequent occurrence after extirpation. Its origin we may trace to the natural effort of the system to close the wounds made in the tissues by the operation, by the effusion of plastic lymph. Every precaution is to be taken against the advance of this inflammation, and its treatment must be based on the ordinary principles. Some of the following cases exhibit this casualty, its course, and the treatment adopted. I regard prompt bleeding as the best and most certain remedy, as my experience has not given me that confidence in opium, as a cure, which most physicians at this day advocate.

d. Peritonitis of a low or typhoid type appears later than the preceding conditions; and is seen when any of the cut tissues put on an unhealthy appearance, and when probably some morbid excretions get into the blood.

e. Pyæmia also appears at a late period, from the absorption and circulation of pus in the blood, and in most cases proves fatal. (See Case XVII.) Respecting these casualties I feel that no special directions are necessary, since the ordinary principles of treatment are those to be pursued.

It will sometimes happen that unlooked-for conditions present themselves after the abdomen is laid open, and complicate the operation, or even render it impossible. Among such is an unusual vascularity of the cyst and consequent danger of fatal hæmorrhage. Examples of this condition have occurred sufficiently aggravated to deter from completing the operation: in such the surgeon must rely on his own judgment; no precise rules can be laid down, but I imagine the vascularity of the sac need rarely arrest the operation. Unexpected attachments of the cyst posteriorly, to the intestines or to other viscera, of such a nature that it would be dangerous to destroy them, will operate more frequently in discountenancing extirpation. Cancer, indeed, may not be discovered until after the operation is commenced, and be so situated as at once to stop it.

Now, in most of these cases, excepting where there is cancer, where the steps previous to the drawing forth of the cyst have been proceeded with, and we are compelled to cease from the attempt at extirpation, the excision of a portion of the cyst is a mode of treatment still available.

In presenting the record of the twenty-six following cases of extirpation of ovarian cysts, it must be confessed that the amount of success attending the operation has been far from encouraging, viewed in relation to numbers only, and has fallen considerably short of that obtained by several other surgeons. For, of the twenty-six enumerated, I cannot refer to more than ten instances of recovery. But, as with statistics generally, the figures of themselves do not convey the whole truth; for, besides numbers, we must take collateral circumstances into account. And I may first remark generally, that several of the cases operated upon occurred to me some years since, when my acquaintance with the method of operating was necessarily small so far as concerned practical experience, and, what is of more moment, when that method was very imperfectly developed, and prior to the many improvements suggested by the advance of surgical science, particularly in all that relates to this class of operations. At that time, for instance, the contra-indications to operating were imperfectly recognised, and the existence of adhesions was a sad stumbling-block in the carrying out of the operation. So, likewise, the diagnosis of the nature and character of the ovarian disease was less perfectly understood, and the success of operations sometimes invalidated by the colloid or other unfavourable nature of the tumour.

To refer briefly to a few particular cases, I may select the three unsuccessful cases out of the nine I have operated on at the "London Surgical Home." In the history of each of these we may discover circumstances, apart from those of the operation itself, more or less explicable of the fatal termination. Thus Case XII. was in every respect most remarkable and unusual. There was congenital ovarian disease, discernible in the eleventh year of the patient's age, which proceeded to develope until it attained an enormous bulk, at the same time deteriorating the health and vital powers. But the tumour itself was still more remarkable; it was not a mere ovarian cyst, or congeries of cysts, filled with serous fluid, but a collection of sacs, developed in relation with a principal cyst containing hair, fat, teeth, with portions of the jaws, nose, &c., and all this, too, in a single woman, never impregnated, and

who had never menstruated. Moreover, the cysts which did not contain these organized matters were filled with viscid, curdy, or caseous matter, the production of which could not have been otherwise than detrimental to the nutrition of the patient. The only rational explanation of such a morbid growth is that it originated in a sort of intussusception of a twin fœtus during uterine life, as in the case of the man whose abdomen contained fœtal remains, as preserved in the Hunterian Museum. Again taking Case XIII. into consideration, we find that the patient was habitually intemperate, that she suffered from great ascites, forty-five pints of fluid having been evacuated from the peritoneum before the ovarian cyst was punctured. After death the liver was found to be shrunk, soft, and its secreting tissue degenerated, and the kidneys congested.

Lastly, the case numbered XXV. was an example of colloid growth. The patient had been several times tapped, and after each operation the secretion of fluid appeared more rapid. Moreover, the fluid was very albuminous, viscid, and rich in organic matter abstracted from the body at large, and consequently at the expense of its proper nutrition and vitality, and after death the liver was found to be fatty.

My experience, therefore, will teach me to be more discriminating in the selection of cases for this major operation, and to reject those where the health is very much broken down; where the drain of albuminous matter by repeated tapping has been great; where the disease is of a colloid nature, or otherwise materially departs from the true cystic character; and where, from the habits of the patient, other organs have suffered organically to the serious detriment of their functions. Indeed, in cases of the description indicated, operative interference appears entirely contraindicated.

But another circumstance deserves noting in a review of my cases of extirpation—viz., that my success has been greater in the public institution—the "London Surgical Home"—with which I am connected, than in private practice—viz., six in the former, and four in the latter. This circumstance I attribute to the more careful nursing and strict supervision attainable in a well-organized institution than in a private house.

And after no other operation is such assiduous attention needed, both on the part of medical men and nurses.

CASE I.—*Of fourteen years' duration: Tapping and pressure employed with much benefit; Ovariotomy; Death.*—Miss E., a single lady, æt. 27. This case was first treated by pressure (reported in the *Lancet* of April 5th, 1845), which proved so far successful, that there was no reappearance of the disease for nearly two years. She was afterwards tapped again, and recovered so well as to be allowed to marry. After her pregnancy and delivery, three cysts were found, two of which were tapped. She nursed her infant for twelve months. Two years afterwards, the cyst having re-filled, she was again tapped, and continued well for another two years, when the cysts began suddenly to fill again. It was then determined to extirpate.

Operation.—A four-inch section was first made through the linea alba, and the *first* cyst presenting itself was tapped. The incision was now enlarged, in order to puncture a second cyst, existing in the left hypochondrium, and pushing the lungs up to the third rib. Still it was found impossible to remove the sac, as a *third* cyst was discovered, occupying the pelvic cavity, having very slight recent adhesions in one spot on the right side. The incision was consequently further extended; the pedicle common to the three cysts was tied by a double ligature, and the operation completed in the usual manner. Peritonitis supervened, and the patient died on the third day, apparently more from exhaustion than from the severity of the inflammation. Probably an earlier operation might have been safe and successful.

CASE II.—*Ovarian dropsy of two years' duration: Ovariotomy: Vascular adhesions and death from hæmorrhage: Autopsy.*—M. A. B., æt. 23, admitted at St. Mary's Hospital May 7, 1852;—married: no children; catamenia regular, first appeared at eleven years of age. She has generally had good health.

Two years ago, whilst walking down a hill, she felt something give way in the abdomen, and soon afterwards noticed, as it appeared to her, a hard round tumour in the right inguinal region, which has gradually increased in size up to the present time. She has a pricking pain in it occasionally. The tumour, over which the integument moves freely, now occupies the abdominal cavity, reaching up to within an inch and a half of the ensiform cartilage. Distinct fluctuation is perceptible at the upper part, where there are also one or two hard nodules. The tumour is universally dull; resonance is heard on percussing over the stomach and the lumbar regions. She has never suffered from difficulty of breathing or indigestion, but has occasionally had faintness come on after taking food. Urine plentiful; sp. gr. 1022, alkaline, non-albuminous. She is 38½ inches in circumference.

11th. A small trocar—as an exploring needle—having been thrust into the tumour, a little below the umbilicus, a fluid escaped which contained much albumen, and some scales of cholesterine.

19th. Bowels have acted freely from the aperients given; feels very weak; has no pain or inconvenience from the tumour. On examination, a defined margin is felt in the upper and right part of the abdomen, like the edge of the liver, but the finger cannot be passed under it. Above this margin there is what feels to be the liver, or a hard part of the tumour: it moves

with the general mass. When she lies upon her left side the tumour retains its form; but a prominence is felt and visible above, and considerably to the right of the navel, and is separated from the general enlargement by a well-marked fissure. The integuments are adherent to the tumour in front of the abdomen, as the recti muscles start forward when the patient tries to raise herself.

20th, 1.30 P.M. She was placed under the influence of chloroform, and an incision, commencing two inches below the umbilicus, and extending downwards about three inches along the median line, was made, opening the peritoneal cavity, and bringing into view the ovarian cyst. This last appeared very vascular, several large vessels coursing over its surface, intersected by numerous smaller ones. The peritoneum covering it was firmly adherent to its surface. It was therefore determined to remove the whole cyst, and on passing the hand over the upper part of it, a firm adhesion was found and divided. By the evacuation of the cyst, rather more than eighteen pints of a dark yellowish-brown fluid, presenting a glistening appearance from having scales of cholesterine floating in it, were obtained. An attempt was now made to draw the emptied cyst out of the abdomen, but this was prevented, although the adhesion above mentioned was destroyed, by another cyst about the size of two fists. This in its turn was emptied by the trocar; its contents were similar to the former. There were also several other slighter adhesions which gave way under the finger when the cyst was drawn out of the abdomen, and along with it an apparently solid mass, occupying the pelvic cavity. The common pedicle was firmly tied by a double ligature passed through it, each portion tying half the pedicle. The cyst was then cut off.

The edges of the wound were brought together by deep interrupted sutures, and by fine superficial ones, to bring the margins of the integuments in close apposition; the ligatures were twisted together and brought out at the lower part of the wound: a pad of wet lint was then placed over the wound, and a bandage, made for the purpose, round the abdomen. She was ordered a grain of opium every three hours. The hard portion of the cyst consisted of numerous smaller cysts, containing a fluid of a more gelatinous consistence than that from the tapped sacs. On inspection of the vessels, two fair-sized ones were found in the band of adhesion.

9.30. Pulse 126; felt very faint on the bandage being re-adjusted: given some brandy-and-water. Respiration 39; complains of pain in the right shoulder; has been sick several times; is rather restless and very thirsty; to have some lemon-juice; to omit the opium for a time.—12 P.M. Has been again sick; feels easier; does not complain of any pain; countenance less pale; skin natural; respirations 42; pulse 148; about half-a-pint of light-coloured urine drawn off by the catheter.

20th. 9.30. Has had several attacks of vomiting. Pulse 160; no pain; headache. Ordered acid. hydrocy. dil. gutt. ij. every four hours.

The sickness, rapid pulse, and general irritability continued with slight exacerbations until 5 A.M. on the 22nd, when she was suddenly seized with symptoms of collapse, and died in about a quarter of an hour.

Death here resulted from hæmorrhage, and that from a very unusual source, viz., the vessels of a band of adhesion, as is shown by the

Post-mortem Examination.—Body well formed. *Abdomen* somewhat tympanitic. Edges of incision adherent except in one or two spots, through which a little pus escaped by pressure; this pus found in the track of the deep sutures. On opening the abdomen, there were found, about two inches and a half to the right of the umbilicus, the remains of the adhesion

divided in the operation, surrounded by a dark coagulum. The cavity of the peritoneum contained about forty ounces of dark clotted blood. Coagula adhered to the intestines at various parts; the peritoneum was stained, but its vessels not much injected. The blood had apparently come from the adhesion, which, as noticed above, had two moderately sized vessels penetrating it. A little coagulum was met with on the stump of the pedicle, which, however, did not appear to have come from it, as the ligature firmly constricted it. Stomach distended by flatus and fluid. Kidneys pale, but healthy. Liver the same. Spleen small, with less blood than usual. Uterus healthy, but left ovary contained a cyst about the size of a walnut. *Chest:* old but thin pleuritic adhesions. Lungs somewhat collapsed, pale and apparently healthy. Heart—a fibrous patch, about the size of a sixpence, near the apex. A dark clot occupied the right auricle, and a fibrinous mass the right ventricle. Left side of the heart empty.

Case III.—*Ovarian dropsy of nine years' standing: Repeated tapping: Extirpation: Death.*—Mrs. D., æt. 37, observed the abdomen begin to swell nine years ago, and this enlargement became so great, and was a cause of so much suffering, that she was tapped five years since, and a clear, light-coloured fluid evacuated. The cyst gradually filled again, and after an interval of two years was a second time emptied; and another two years having elapsed, the same process was repeated. In January (1852) paracentesis was again, for the fourth time, practised; and afterwards the collection of fluid occurred more and more speedily;—an interval of seven weeks, and at last of only three weeks, being interposed between the tappings. Altogether she has undergone the operation seven times, and of late by the rapid accumulation her health is suffering considerably. On the last occasion the fluid had a red colour; from one cyst twenty quarts, and from another six quarts were discharged. At a previous operation three distinct cysts were opened, each containing a distinct fluid. The evacuation of the cysts has prostrated her exceedingly at the time; indeed, after the two or three last operations, it appeared she would hardly rally; hence stimulants and general measures to support her have been required for some days after the tappings. The abdomen is greatly distended. Previously to my seeing her, this patient had been under the care of Mr. Hearne, of Gloucester.

It was clear she could not long survive the exhausting effects of the repeated and oft-recurring tappings, and I thought the chance of cure by ovariotomy ought to be given her, although from her feeble state the prospect of success was not very encouraging.

July 1st, 1852. I proceeded to operate for the extirpation of the diseased ovary. Dr. Handfield Jones, and Messrs. Smith, J. Lane, Trotter and Umphelby, were present and assisted me. Beginning with a small incision, I ultimately extended it to eight inches in length, on account of the mass of disease, and its relations and extended adhesions. Some of the last were of the breadth of the palm of the hand, and one was long and cylindrical, and required a ligature before cutting through it.

Numerous cysts were found in connexion with the larger, easily breaking down under the slightest pressure or handling, and rendering their removal difficult. An immense mass of disease was removed, weighing, with the fluid contained in the cysts, seventy pounds.

The pedicle was tied, the wound brought together by sutures, a bandage applied, and the patient placed in bed.

Two grains of opium were given immediately after the operation, and one grain repeated twice in the after-part of the day. She got some sleep at night.

July 2nd. Vomiting occurred after taking some gruel; and at noon, some nausea being present, I gave a dose of hydrocyanic acid in camphor julep. A grain of opium was taken this morning. This afternoon, pulse 90, weak; skin warm; mouth dry. Dozed a little. The opium was repeated at half-past five, and the urine drawn off. The latter had a strong odour, was high-coloured, of feeble acid reaction, and loaded with lithates.

3rd, 6 A.M. Some sickness persists; hydrocyanic acid again given. Pulse 87, not hard; complains of pain in the right iliac fossa. At 7.30, was ordered a suppository of three grains of opium. 6 P.M. Pulse increasing in rapidity, 111; tongue moist, slightly coated; skin warm; sickness still present. Complains but little of pain. Abdomen, in the epigastric region, becoming more distended, but not tender, except in left flank; edges of wound in nice apposition. Later in the day the pulse became weaker and indistinct: the opium was repeated and the catheter used. Some brandy-and-water gave benefit.

4th, 10.30 A.M. Some sickness on three occasions; distension of stomach less; respiration easy, but pulse fluttering and feeble; no pain or tenderness complained of. Ordered ʒj spt. ether sulph. co. After this she became restless; the symptoms of sinking manifested themselves yet more, in spite of every attempt to rally her by stimulants, and at 4 A.M. of the 5th July she died.

The constant nausea and vomiting in this case rendered nugatory the endeavours to support her against the shock and exhaustion attendant on the operation; otherwise the degree of inflammation evidenced by the symptoms and displayed by the autopsy, would probably have been survived.

Examination, twelve hours after death.—Body not much emaciated. Some hypostatic congestion; a large quantity of dark fluid gushed from the mouth; the edges of the wound were very nicely adherent by a gelatinous lymph; the adhesion of tolerable firmness; the edges of the wound also adhered to the intestines. The great omentum adhered by recent exudation and blood to the peritoneum of the anterior wall of the abdomen, at the part where some large adhesions of the cyst had been dissected off. The pelvic cavity contained a large quantity of sero-purulent discharge. The surface of the parietal peritoneum, on the left side especially, was coated with lymph and injected. The surface of the stomach, and of the small intestines generally, was covered with an extremely thin, lymphy exudation, without much vascular injection. The surface of the uterus was especially injected, and coated with lymph, as well as the broad ligament, and the pedicle which had been ligatured. *Right kidney*, the seat of reticular venous congestion; a cyst on the surface; the texture coarse; some part of the surface slightly granular. *Left kidney*, in same state, but capsule more adherent; surface more granular. There was a quantity of blood-stained gelatinous mucus hanging out from the os uteri. It was continued through the cervix, which, however, was not congested, but appeared healthy. Texture of liver natural; capsule thickened generally, and anterior edge rounded. Other viscera not examined.

CASE IV.—*Attempted excision of a portion of the cyst; Subsequent extirpation and recovery.*—Miss B., aged 30. In the year 1843 this lady

was tapped for ovarian dropsy, and pressure applied, and no return of the fluid took place for seven years. In 1850 she complained of being stouter. On examination of the abdomen, I found a solid, slightly elastic, but not fluctuating tumour in the left iliac fossa. In 1851 I again examined her, and found the tumour, but still could not detect fluctuation. In March, 1852, there was a considerable increase of the tumour, and fluctuation was distinct. Shortly afterwards, I introduced a very small trocar, and drew off an ounce of clear, transparent, and very slightly albuminous fluid. It seemed a favourable case for excising a portion of the cyst, as there were probably no adhesions, and the patient was in excellent health and spirits, most confident, indeed, of a successful issue of the proposed operation. I advised her to live on milk, farinaceous and vegetable diet; to take no beer, wine, or spirits, and to keep her bowels well open daily. This was steadily attended to, and the size of the abdomen was very much decreased by these means.

Operation.—March 29th, 1852. Present, Mr. Lane, Mr. J. Lane, Dr. H. Jones, Mr. Wellings, Mr. Bullock, and my brother, Mr. George Brown.

Chloroform having been administered, and a towel placed round the lower ribs and made tight, the patient was brought low down to the foot of the bed, and the abdomen being held by the Messrs. Lane, I made an incision of four inches between the umbilicus and pubes, dissected down to the peritoneum, and divided it on a director; seized the cyst with forceps, and then introduced the trocar, and drew off about nine pints of clear fluid. The external covering of the cyst was very vascular, some large vessels ramifying on it. Avoiding all the larger ones, I dissected out a piece of the cyst, of the size of the palm of my hand, and found the whole cut edge of the remaining portion of cyst, which was thick (one-eighth of an inch), bled freely, and no torsion of the vessels seemed to stop it. Under these circumstances, finding there were no adhesions, we determined to remove the entire cyst. On drawing out the cyst, I came upon the thick, round pedicle of the tumour on the left side; its base was an inch and a half broad, and one large blood-vessel passed through the centre. I passed a double ligature through the base, and tied both sides tightly, then brought the edges of the wound in the abdominal wall together by four deep sutures and by three superficial ones. I left the ligature out, and secured it by strapping to the right side; applied a water compress, and over the whole abdomen one of my many-tailed bandages. The operation occupied more than half an hour. She was some time in reviving from the chloroform, and was sick after taking some brandy-and-water. Pulse 108.

At 8 o'clock P.M., took some beef-tea, and two grains of opium. At 10 P.M., Dr. H. James and Mr. Bullock saw her with me. Pulse 108; skin soft and moist; countenance cheerful and hopeful; applied fresh water dressing, and reapplied the bandage; passed the catheter and gave one grain of opium. At 12 she was sick and vomited freely.

30th. At 4 A.M., vomiting recurred, but she slept afterwards quietly; skin moist; pulse 100, and compressible.—7.30 A.M. Feeling sick, gave some ice to suck, which gave relief.—2.30 P.M. Pulse 96; countenance cheerful; has had some beef-tea; wound looking healthy; no swelling of abdomen; placed a plaster over the entire abdomen, having first applied lint and napkins.

31st. Has passed a good night. Urine passes freely, but there is no power over the sphincter vesicæ. Pulse 100; skin moist; countenance cheerful.—Ordered some more beef-tea for support, and an opium pill if at all wakeful. No tenderness or swelling of the abdomen.

April 1st. Has passed a good night from one dose of opium; enjoyed her breakfast; pulse 96; countenance cheerful; removed the interrupted sutures.

2nd. Has passed a very restless night, had 2 grains of opium, one at 12, and another at 3; is now very drowsy. To have beef tea.—Removed the two lower sutures; the wound is united by the first intention.

3rd. The sutures having given pain, I removed the upper three; to have arrow-root, with one ounce of wine in it.

5th. Gave an injection of warm water, which emptied the bowels.

From this time she gradually progressed without any single unfavourable symptom, and on the 27th the ligature came away.

30th Down in the drawing-room convalescent.

This case exhibits an important feature in the operation, as it offered a serious practical difficulty to completing the excision—viz., the hæmorrhage from the numerous blood-vessels ramifying in the external tunic, and unless I had decided to extirpate the entire cyst, I must have applied ligatures to all the blood-vessels before closing the wound in the abdomen.

This lady married in Oct. 1853, and had, in January, 1860, become the mother of three healthy girls.

Case V.—*Ovarian dropsy, fifteen months' duration; Ovariotomy; Death: Autopsy.*—Elizabeth D., æt. 29, married, was admitted into St. Mary's Hospital, labouring under ovarian dropsy.

The abdomen began to rapidly enlarge on the right side about fifteen months since. Health pretty good; catamenia regular until recently. Has one child six years old. By careful manipulation the hand can be passed under the tumour, so as to negative the probability of adhesions; the cyst can also be moved a little from side to side; fluctuation obscure.

June 16th, 1852. *Operation.*—She was placed under the influence of chloroform, and an incision about four inches long made in the median line below the umbilicus. A large irregular tumour was then exposed, only adherent at one small point of the omentum. It was punctured in several places, and small quantities of somewhat gelatinous fluid let out, but not sufficient to materially lessen the sac. The incision of the external parietes was therefore extended upwards above the umbilicus for about three inches, and downwards to within two inches of the pubes; the omentum was then carefully dissected off the cyst, a piece of the peritoneal covering being taken with it, and a small vessel tied with ligature cut off close. A large vessel running up from the pedicle on the cyst was also divided. The pedicle was then tied with three ligatures passed through it, and the whole tumour removed; it weighed 11 lbs. 3 oz. The edges of the wound were then brought together with fourteen deep sutures, and three or four superficial ones, the ligatures being brought out at the bottom, with the exception of that on the omentum, which was left in the abdomen. Wet lint and a bandage were applied.

6 P.M. Is complaining of a good deal of pain in her abdomen, and that the bandage is tight. This was loosened. Ordered opii gr. ij. stat. et post horas 2.—9.45. Is complaining of increased pain; has had no sleep; abdomen a little increased in size; complains again of the bandage; tongue and skin moist, pulse 100, soft; respirations 36; very slight abdominal movement; a little tenderness; has her knees drawn up. Hydrarg. chlorid. gr. v. 4-tis horis. Opii grs. ij. 2ndis horis.

June 17th, 1.15 A.M. Pulse 100, fuller; has been easier, but is now complaining much of pain. V. S. ad ℥xxiv. The blood was buffed. She

became faint and sick; pulse 120, small and rather feeble; said she was easier, and could take a deep breath better. Ordered Opii, ♏ xl.; decoct. amyli, ℥ij. ft. enema, statim, et post horas iv. utend. si opus sit. A leather plaster was placed with relief over the abdomen. 9.30 P.M. Pain removed by leeches; pulse 150, small: inclined to be running; tongue moist. Pil. opii, gr. ij., statim, et 3tiis horis si opus sit; beef-tea.

June 18th, 8 A.M. Has passed a tolerable night, and slept five hours; she was sick after the opium pills last night; some hiccup; tongue moist, somewhat coated in middle; pulse 135, small, vibrating, weak; skin warm, not burning; abdomen not more distended; bears gentle pressure without pain; aspect not anxious; about one tea-cupful of beef-tea taken and retained last night. Ordered beef-tea, milk, and lemon-ice to-day.

2.30. Frequent sickness; greenish mucous and watery matter vomited; no pain or distension; pulse 145, small, feeble. A bottle of soda water, and a mixture of carbonate of soda with hydrocyanic acid every hour.

9 P.M. Has had a little brandy and water. Aspect improved; feels tolerably comfortable; less sickness; pulse 150, not sharp; respirations 20. Quinæ disulphi gr. ij.; acid. sulph. dil. ♏ v.; spt. æth. sulph. co. ♏ xv.; aquæ ℥ss., frequently.

19th. Slept for two hours; aspect decidedly improved. Tongue moist, slightly coated. Has had two more doses of quinine without spt. æth. sulph. co., and taken at various times arrowroot, beef-tea jelly, with a little brandy-and-water, without being sick; wound healing by first intention.

20th, 10 A.M. Pulse 120; small, somewhat less feeble; had some quiet sleep in the night; some ligatures removed; size of abdomen rather increased; no tenderness; a fresh layer of plaster girding the abdomen applied. Pil. sapon. co. gr. x., as a suppository, last night. Port wine, lean of mutton chop at 1 P.M. Enema, with some castor oil, which freely opened the bowels.

9 P.M. Sickness again this evening, apparently from ether given by mistake; much flatulence. Haustus acid. hydrocyan., repeated occasionally, Pil. sapon. co. gr. x. at bed time.

21st. Slept about one hour; abdomen softer and smaller. Pulse 114, skin warm. Chop to-day; porter, half a pint; brandy, ℥v. Six sutures removed; suppository repeated at night.

22nd. Has not had more than a half-hour's sleep during the night; sickness has returned at intervals. Bowels acted twice in the night. Pulse 144. Several sutures removed; straps of plaster applied. During a fit of vomiting in the afternoon the plaster gave way, and the lips of the wound separated, completely exposing the intestines, which were seen covered with lymph. The edges of the wound were pared and brought together by four sutures. Prescribed for her a draught containing dilute nitric acid and bark.

23rd. Slept well at intervals. Pulse 135, small; skin not hot; tongue quite clean.

Bowels thrice open to-day. Has eaten half of two mutton chops at different times, and drank half a pint of porter; has slept a good deal, and soundly, during the day. Pulse 144, soft, weak; skin cool and moist.

24th. Slept little last night; wound open for about two inches at the upper part, a suture having given way; slept a good deal during the day; has taken two mutton chops and a boiled sole, and ℥xvj. of port wine and ℥iv. of brandy; no sickness. Wound dressed to-day.

25th. Passed a better night than she had yet had; aspect this morning

very favourable; cheerful. Pulse 120, of more strength. Bowels acted every night; much flatus escaping. Tongue clean, rather dry. Some sanious discharge from the whole extent of the wound escaped on dressing it.

27th. Tongue moist, clean. Slept well. Pulse 120, more distinct; countenance improved; wound looking healthy. Diet, wine, one pint; porter, half a pint; sole, rice and milk.

July 1st. Slept quite quietly all night; the bowels rather inclined to be relaxed. Has taken food well. Pulse 117, more distinct; wound gaping at upper part, but granulating well at base and edges; aspect better.

3rd. Tongue rather dry, especially at apex; slept well, with opium suppository; bowels disturbed much last evening; quiet since then; wound healing rather languidly. Pulse 126; skin somewhat hot.

6th. Tongue rather dry. Pulse 120, very weak; skin rather burning, dry; much depressed yesterday by great heat; appetite failed; bowels act involuntarily, require to be quieted by suppositories; aspect less favourable; throat said to be a little sore (it seems rather that the jaws are stiff); wound looks languid, but not otherwise unhealthy; ligature of pedicle came away with a portion of the slough. Add quinæ disulph. gr. x. to the mixture.

8th. Condition much the same; catamenia present last night; wound in about the same state; dressed with black wash; takes beer and wine well, but not much food; much less discharge. Pulse 117; skin tolerably cool; jaws continue stiff; glands under right side of the lower jaw enlarged, so that she cannot open her mouth well.

Ferri et quinæ citratis, gr. xv.
Tinct. cinchon. co. ʒij.
Aq. pimentæ, ℥j, three times a day.

11th. The catamenia having been present for about four days,—this being the natural period, have to-day advanced to the extent of menorrhagia, which has brought her very low. She had stimulants administered freely on this and the next day, but continued to sink, and died on the 12th, about 9½ P.M. The menorrhagia was checked by application of ice to the vagina. The discharge from the abdominal wound had been unhealthy during the last four days. The stiffness of the jaws continued to the last.

Examination seventeen hours after death.—Body emaciated, wound in abdomen 7½ inches long, its margin separated, of a semi-sloughy appearance. The bottom of the wound formed by the omentum covered on its surface with feeble granulations, almost lapsed into a state of slough. The peritoneum of the edges of the wound adherent to the visceral layer; on the left side these adhesions did not extend far; on the right, they were much more extensive, and spread over the whole of the right iliac and lumbar regions. The stomach and duodenum tolerably healthy, and free from traces of inflammation; the whole of the small intestines covered with granular lymph of some standing, and of a rather dark and sloughy aspect. The inflammation had been most considerable on the right side of the abdomen, where it had united together the intestinal convolutions extensively by effused lymph, and had also passed on in several places to the production of pus. In some parts ulceration of the intestinal canal had commenced, extending in the direction towards the cavity of the bowel; one such patch in the cæcum was very remarkable, having caused thickening and congestion of the mucous lining. The interior of the

ilium much congested. The peritoneum covering the uterus and bladder was inflamed and covered with lymph, as also was that covering the liver, which was united by some rather long adhesions to the diaphragm. There was a small excavated ulcer on the vaginal surface of the cervix uteri; the lining membrane of the womb was much congested, especially towards the right Fallopian tube; in the direction of the other it was pale, and a probe could be passed from the uterine cavity through the remains of the tube, which had been divided in separating the pedicle of the cyst.

Case VI.—*Ovarian dropsy of one year's duration: Treatment at first by tapping and pressure: Excision of portion of cyst impracticable: Ovariotomy: Cure.*—Mrs. B., æt. 57; she first noticed enlargement of the abdomen on the right side eight months ago; at first the increase was gradual, but of late had been much more rapid; ten years since, the catamenia disappeared, but reappeared last April; has had seven children, the youngest being fourteen years old. I recommended that tapping should first be had recourse to, followed by steady pressure. Accordingly, on November 3rd, 1853, I removed by tapping thirteen quarts of fluid, which contained a considerable quantity of albumen, and then applied one of my "ovarian bandages," and gave her bichloride of mercury in tincture of bark. Her health and spirits rapidly improved, and she returned home to the country.

On December 3rd, she wrote me that she was much improved in health; that she had, as requested by me, taken an accurate account of the fluids taken and the urine voided; and had found the former, from the 10th of November to the 3rd of December, twenty-four pints, and the latter twenty-nine pints; showing that the kidneys had excreted an excess of fluid of five pints.

After this the cyst gradually refilled; and on February 27th, 1854, she came up to town again, and wished the operation for extirpating the tumour to be performed. Accordingly, on March 2nd, just four months after tapping, having kept her a short time previously on farinaceous diet, I undertook the operation. Being brought under the influence of chloroform, I placed her diagonally across the bed, and, assisted by Messrs. Nunn, Winchester, Wilkin, and my late son, proceeded to operate. Making an incision in the median line, midway between the umbilicus and pubes, about three inches in length externally, I came down upon the peritoneum, which gave some little trouble in dividing, with the aid of a director, because there was so large a quantity of fluid between the peritoneum and cyst. This was, however, shortly all evacuated, and the ovarian tumour well seen. I had at first intended to have taken out a piece of the cyst only, but I found the coats so thick that it was quite impracticable. I passed my hand round the tumour and found no adhesions. An assistant then seizing the tumour with a pair of vulsellum forceps, I introduced a trocar, and while the liquid was escaping the patient retched a little, and expelled the tumour entirely. I then tied the pedicle, which was four inches broad and two inches long, in two portions, with double ligatures of well-waxed twine, and removed the tumour. During the expulsion of the tumour, a very small portion of the omentum and of the bowels protruded, which were held back by flannels first wrung in hot water. The pedicle was tied to a director placed transversely across the abdomen, in order to keep it external, and the opening closed by four deep sutures above the pedicle, and one beneath, and by four or five interrupted sutures. A pad

of lint soaked in cold water was applied, and one of my flannel many-tailed bandages.

Two grains of opium were given as soon as she recovered from the effects of the chloroform, and one grain ordered every two hours, and ice to be sucked constantly.

11 P.M. Has had six grains of opium. Pulse 98, wiry; complains of flatulence, with nausea and retching; slight uneasiness and evident symptoms of approaching peritonitis. Bled her from the arm to sixteen ounces. After bleeding, pulse fell to 84. Gave ten grains of calomel and two of opium, and afterwards one grain of opium every hour.

March 3rd. Has slept an hour and a half; feels very comfortable; sickness quite gone; pulse 86.

6·30. Has been very quiet; countenance perfectly calm. No indications of peritonitis; pulse 86, and good. Has taken in all twelve grains of opium. She now mentioned that whenever she took opium she had dryness of the throat and great thirst; and although she had taken twelve grains of solid opium, there were no signs of narcotism. Bowels were acted upon three times by the calomel, and she passed a great quantity of flatus.—11 P.M. Ordered a quarter of a grain of muriate of morphia every two hours till sleep is induced. During the night she took four doses, was perfectly calm, but had very little sleep.

4th, 7 A.M. Pulse 72; skin moist; bowels quiet; no tenderness on pressure. Since operation the urine has been drawn off by catheter every four hours. Beef-tea and barley-water allowed, the morphia to be repeated at night.

5th. Has slept well. Pulse 72; the upper part of the wound healed by first intention; the pedicle of the tumour begins to slough. On the 10th, removed superficial sutures; on the 12th, removed two upper deep sutures, union perfect; on the 15th, ligatures came away; and on the 16th, she was able to be removed to the sofa.

25th. Is quite well, and has gone a little way out of town.

Jan. 1861. This patient continues in the enjoyment of good health.

I would draw attention to the fact of the tied end of the pedicle and the ligatures in this case being kept external, as recommended by Mr. Duffin and also practised by Mr. Erichsen.

CASE VII.—*Ovarian disease: Ovariotomy: Death: Autopsy.*—Mrs. R., æt. 37, consulted me in October, 1853; was married at 19, and is the mother of two children, aged respectively 13½ and 12. She enjoyed good health till May, 1852, when she was suddenly seized with most violent pain on the right side of the abdomen, reaching to the hip-joint and downwards, accompanied by sickness. This lasted day and night for three days, when it gradually subsided, leaving only a pricking at the hip-joint, which continued some days longer. In about three weeks she recovered her usual health, but after a time observed a tenderness, accompanied with slight swelling, at the lower part of the belly. Of this she took little notice, her general health being unimpaired. As winter advanced, the swelling continued to increase, and in April, 1853, she consulted Sir C. Locock, who pronounced the disease ovarian dropsy. In October she became greatly prostrated in health and strength, and I advised change of air, with the adoption of every means for restoring strength, and the use of a tight bandage. She left town for Brighton, and at the end of three weeks was greatly improved. Two months afterwards, she began to experience

much restlessness at night, with a sense of weight and oppression in walking. She had much pain in the hip, knee, and ankle. The sleeplessness continuing so distressing, she determined again to consult me. Six months having elapsed since I first saw her, I was greatly surprised at the improvement in the general health; and she, having heard that I had just had a successful case of ovariotomy, determined to submit to the operation, after having been fully impressed with the danger to be apprehended, which was even greater in her case than ordinary.

Chloroform being administered, I proceeded to operate on April 6th, 1854; present, Messrs. Lewis, Nunn, Spencer Wells, Winchester, and my late son.

An exploratory incision having been made, the finger was introduced and passed over the tumour, and all the adhesions within reach easily broken down; the incision was therefore enlarged to 3½ inches, and on the hand being introduced, all the adhesions gave way in front of the tumour; but at the upper part and at the sides they were found to be very strong. The trocar was then used, and twenty-one pints of turgid, white, oily fluid, with a fatty sort of substance floating in it, evacuated. After about twenty minutes of difficult manipulation, all the adhesions were broken down. On the left side there had been a layer of plastic matter, apparently effused by peritonitis, thrown out between the tumour and the peritoneum, glueing the two together, and especially adherent to the cyst, to which it almost formed an outer covering. This layer was at last, with great difficulty and trouble, peeled off the tumour; a small portion of the bowel and omentum, to which the cyst was adherent above, protruded, but was held back by flannels wrung in hot water. There was no bleeding of any consequence. The pedicle of the tumour, which was four inches broad, was tied in four portions, and retained external by means of a director placed transversely across the abdomen. The wound was closed by four deep interrupted sutures and two superficial ones. In the tumour there were three lumps of hair about half the size of the palm of the hand, and a great many cauliflower excrescences on its inner coat. She had two grains of opium directly after the operation, and repeated at intervals all night, so that up to eight o'clock on the morning of the 7th, she had taken fourteen grains of opium and four grains of muriate of morphia, but still had only had two half-hours' sleep. Constant vomiting prevented her having any rest. Pulse from 96 to 100. To take grs. 4 of opium and a mixture of hydrocyanic acid, ammonia and soda. 11·30 P.M. No more sickness; has had refreshing sleep twice for three-quarters of an hour.

8th, 2 A.M. Has had more sleep, and taken beef-tea, lemon ice, barley-water, and tea. 7·30 P.M. Two grains of opium given three times since the morning. Very comfortable; says she feels quite well; skin moist. No swelling of abdomen; removed dressing for the second time; the pedicle offensive, to be washed with a solution of chloride of lime. Pulse 100.

9th. Has had on the whole a comfortable day, but towards evening she was distressed with eructations of wind and nausea: gave a rhubarb draught.

10th, 7 A.M. Has passed an uncomfortable night; been sick and restless. Bowels relieved four times; much flatus escaped per rectum after injections. A dose of creasote relieved the sickness for some hours. 10 P.M.: Has vomited a pint of dark fluid: gave 20 drops of bimeconate of morphia. Sickness recurred soon after; repeated opiate in two hours, and again in four hours.

11th. From 4 A.M. no sickness, but occasional hiccup. 11 A.M. Has

had some very quiet and refreshing sleep, and is better. 9 P.M. Has passed a very quiet day, sleeping, and has taken a cup of beef-tea. Barley-water and chicken-broth have been given alternately every hour. Removed the two upper deep sutures: healthy pus came from the wound.

12th, 8 A.M. Has passed an uncomfortable night, frequently sick. Gave two grains of calomel, and in the evening the bowels were well relieved by an injection: omitted the opiate at night.

13th. Has passed a comfortable night, and is better. Removed the last suture.

14th. Has had a restless night, and is not so well this morning. In the evening she grew very restless; pulse small and quick; clammy cold perspiration on the skin and hands. Gave her some hot brandy and water, and half-an-hour afterwards some port wine, with twenty drops of bimeconate of morphia, which in half-an-hour produced sleep and quieted the restlessness.

15th, 8 A.M. Has been very sick all night, but has less oppression, and is not so low as last night. Ordered her a drop of prussic acid every hour, and wine and nourishment to be continued. She had a relapse, rapidly got worse, and sank at 11.30 P.M.

An autopsy was made at 4 o'clock P.M. on April 16th. An immense quantity of sanio-purulent matter was found in the pelvic cavity; the bowels had a slight blush upon them in some parts; the lower part of the omentum was very much enlarged and indurated; that which remained of what at the operation seemed to be a second covering of the cyst, was found to be very adherent to the peritoneum and nodulated in some parts, and there were evident symptoms of severe inflammation of old standing. A portion of the thickened omentum, and a piece of the layer, together with the vermiform appendix, the kidney, and the uterus, were removed for subsequent examination. In the thorax the lungs were found to be very extensively congested; the muscular coats of the heart flabby with fatty degeneration in some parts, and there was some fluid in the pericardium. The stomach was enormously distended. On examination, the uterus was enlarged, and the walls of pale aspect, but nothing abnormal could be seen; the thickened portion of omentum was of simple inflammatory origin, and contained some spots of fatty degeneration; the vermiform appendix empty and natural; on one side of the layer which covered the ovarian cyst was a dense layer of thickened fibrous membrane, beneath which was a quantity of less indurated areolar tissue and fat, containing a good deal of black pigmentary substance. The kidney, though much enlarged, was tolerably healthy; a little interstitial fibroid formation existed among the tubes; capsules shrunk.

CASE VIII.—*Ovarian dropsy, eighteen months' duration: Ovariotomy: Death.*—Miss C., æt. 31. At the age of twelve years she suffered a good deal from incontinence of urine; this continued until she was seventeen, when it ceased, and from this period her health has not been good, and she suffered much from pain in the legs and side. Menstruation always regular, but accompanied with great pain. In 1851 she caught cold, and was very ill from hysteria, and during one of the paroxysms, her mother whilst applying warm flannels to her abdomen discovered a tumour, as large as a good-sized ball, on the right side of the abdomen. She increased rapidly in size, and was placed under treatment and got much better; so much that it was not noticeable in society. At Christmas last she caught cold and got rapidly worse. In April her legs swelled very much; she

then went into the country and the swelling decreased. The menses, however, appeared every fortnight. Latterly the swelling has very much increased again.

Sept. 18th, 1852. She was tapped in the left semilunar line, and a large quantity of clear serous fluid drawn off. As there was still much remaining, another opening was made on the right side and a large quantity of highly albuminous fluid removed. After this there remained a large mass composed of innumerable cysts of various sizes, which could not be emptied. Bandages and slight pressure were applied. It was now rendered evident that there was no means of affording relief except extirpation, and after due consideration she agreed to have it performed.

Sept. 29th, 1852. I first made a small incision in the median line, beginning just below the umbilicus and cut down upon the cyst. On passing the finger through this opening, round the cyst as far as it could reach, no adhesions could be felt. The incision was then extended about half an inch each way, when three arteries of large size were divided and required ligatures. The first cyst which presented was then emptied, and the hand passed in to break down any adhesions. There were only a few, of no importance, on the upper part of the right side. Eight cysts were now successively emptied, and the mass was then withdrawn from the abdomen. The pedicle was tied in three portions and the tumour cut off. The wound was closed with deep and superficial sutures. The pedicle was retained external to the wound by means of a silver director passed through the ligature, and placed transversely across the abdomen. Wet lint and a many-tailed bandage applied.

Effects of the chloroform soon passed away, and then two grains of opium were administered. In the evening she became uneasy and vomited, and after this became very comfortable.

Sept. 30th. In the middle of the day there was a good deal of flatulence, with some tenderness on pressure in the epigastrium. She has had eight grains of opium in twenty hours. Bled to ℥xij. The bowels were moved in the evening, and there was great flatulence. She became rapidly worse after this, and died at 11 P.M., thirty-two hours after the operation.

CASE IX.—*Ovarian dropsy: Tapping with pressure unavailable: Extirpation: Death: Autopsy.*—Miss C., æt. 30. The swelling has come on gradually for four years. Menstruation regular. Examination leading me to conclude that it was a case of unilocular ovarian dropsy, I recommended tapping and pressure, and on January 24th, 1856, I tapped the large cyst and drew off a quantity of clear, straw-coloured, non-albuminous fluid. I then found another distinct cyst in the right side just under the liver. This I tapped by introducing the trocar through the same opening, and drew off about four pints of clear fluid. I then discovered another cyst in the pelvis with which I could not interfere. It thus became evident that pressure could not be of any use, and nothing but extirpation remained. After due deliberation she consented to undergo the operation.

March 7th, 1856. Being placed under the influence of chloroform, I made an incision in the median line about three inches long, and carefully opening the peritoneum exposed the cyst. Passing the hand round the tumour, I found no adhesions. I then drew off with a trocar eight pints of fluid. Seizing the cyst I easily withdrew it and tied the pedicle in two portions. Having cut off the mass, I closed the wound with four deep and two superficial sutures. The pedicle was returned into the

abdomen, and the ligature was brought out at the lower extremity of the incision. Wet lint and a many-tailed bandage were then applied. When she rallied from the chloroform, opium was given and repeated as required. She never seemed to rally after the operation entirely, but sank gradually from the shock at 1 P.M. on March 9th.

Post-mortem twenty-four hours after death.—The intestines slightly injected, but very little lymph thrown out. The colon was closely adherent to the broad ligament. Uterus slightly injected. The ligature on the pedicle very firm. The ovary which had not been removed contained a large cyst, and also a soft vascular growth about the size of an egg, and probably of a malignant character. In the cavity of the pelvis was about a pint of fluid consisting of serum and pus. The upper part of the left lobe of the liver was much congested, and contained in one spot a small quantity of pus mixed up with blood. Kidneys healthy.

CASE X.—*Ovarian dropsy, two years' duration: Ovariotomy: Cure.*—L. P., married; no children. Soon after marriage, two years ago, noticed an enlargement of the abdomen, which went on increasing until March, 1858, when she had an attack of peritonitis, from which she soon recovered, but had a relapse. In the end of May she had a third attack. After this I saw her and found her suffering from great debility, and the results of the peritoneal inflammation. I ordered her tonics, quinine and iron, which very much improved her general health. An examination now showed great enlargement of the abdomen, which evidently arose from multilocular ovarian dropsy. It appeared to have adhesions on the anterior and right lateral parts. Menstruation irregular. After mature consideration she elected to undergo the operation of extirpation, and was admitted into "The London Surgical Home" on October 12th, 1858. She underwent a few days' preparatory treatment, and on October 20th she was placed under the influence of chloroform. I made an incision from the umbilicus to the pubes in the median line, and gradually cut down to the peritoneum, which I then opened, and exposed the cyst, which I seized with vulsellum forceps, and let out a large quantity of thick albuminous fluid through a large trocar. Introducing my hand and gradually working round the cyst, I broke down the adhesions, which were situated chiefly low down on the right side. There was only one of any importance, and this I tore through. The mass of cysts was gradually emptied and drawn out of the abdomen. The pedicle was long and thin; a pair of calipers was tightly fastened around it, and the cystic mass cut off. The fluid which had escaped into the abdominal cavity was sponged out, and the edges of the wound brought together with iron wire sutures, inserted at intervals of half an inch. The pedicle was secured at the lower end of the wound, and retained there by the calipers, which were left on. The wound was covered with wet lint, and the many-tailed flannel bandage applied round the abdomen. As soon as the effects of chloroform had passed away she had a grain of opium, and was ordered to be kept steadily under its influence. She went on very well, and on October 24th the dressings were removed, and the wound found to be healed by the first intention.

Oct. 27th. The calipers were removed. She rapidly recovered.

She is now—in 1861—in perfect health, and menstruates regularly. At each epoch, the skin just over where the pedicle was secured, breaks, and there is a vicarious discharge during the whole period; but so soon as that is over the wound heals up.

CASE XI.—*Ovarian dropsy, sixteen months' duration: Ovariotomy: Cure.*—A. P., æt. 26, single. In the early part of June, 1857, she perceived a slight swelling low down in the right side, which increased rapidly for the first month, but after that period much more slowly. A good deal of nausea and sickness occurred, especially of a morning. At different intervals blood was freely expectorated, without being accompanied by any cough. Various plans of treatment were used, but without any benefit. On October 2nd, 1858, I examined her, and found her suffering from multilocular ovarian disease, and diagnosed only few adhesions. Her general health being a good deal broken, I placed her upon generous diet, and gave her quinine and iron. Her health having much improved, she consented to the operation of extirpation.

Oct. 25th, 1858. Having been placed under the influence of chloroform, I made a small incision, about four inches in length, in the median line between the umbilicus and pubes, and carefully divided the various tissues until I came down to the peritoneum. This membrane bulged out from the amount of effusion which had taken place in its cavity. On making an opening into it, a large quantity of fluid escaped, and a mass of cysts immediately appeared. I punctured them with a large trocar, and emptied what cysts I could, but a very small quantity of fluid could be withdrawn. The walls of the mass were so rotten as to break down under very slight pressure; I therefore was obliged to enlarge the opening, and then, with some trouble, managed to draw the mass out. The pedicle, which was thick and soft, I enclosed in a pair of calipers, and then withdrew the cystic mass. I then removed all the fluid which had escaped into the peritoneal cavity, and brought the edges of the opening together with iron wire sutures. The pedicle was retained at the lower end of the wound, the calipers being left on. The wound was now covered with wet lint, and a many-tailed bandage applied round the abdomen.

When the effects of the chloroform had ceased, she was placed under the influence of opium.

The removed mass was composed of an immense agglomeration of small cysts, without any larger ones being developed. It crumbled to pieces under the slightest pressure. She went on without a single unfavourable symptom. The callipers were removed on Oct. 30, and in six weeks she was quite well.

CASE XII.—*Ovarian disease: Congenital: Ovariotomy: Death: Autopsy.*—Miss N., æt. 21, unmarried. The account given by her medical attendant in Germany is as follows:—"Miss N. complained in her eleventh year of periodically recurring pains in her stomach, though by external examination no enlargement could be perceived, In the spring of 1849 the pains were very severe, and in the right hypogastric region a swelling was discovered, which had a rough, uneven surface, and did not change its position in different movements of the body. The unevenness of the swelling gradually became less perceptible, and the presence of fluid showed itself. In the summer of 1857 she had a fall, followed by pains in the abdomen, which, upon examination, was found more level, the sides being expanded, and the parietes softer and less stretched. After a few days, a flux came on, and the collection of water decreased. The swelling in the right side was less distinct than formerly. Gradually water collected in the abdomen, and she complained much of the left hypogastric region, where the swelling and pain have since remained." In addition

to this, it should be mentioned that she had never menstruated, and her general health was a good deal broken.

In August, 1858, she came over to London and consulted me. I found a large multilocular ovarian tumour, more prominent on the left side than on the right. It filled up the abdomen, and was to a certain extent moveable. I considered that extirpation was the only thing available. The patient went away to consider about it, and did not return again for six months, when the tumour was much increased and her general health more undermined. She was now very anxious to have an operation performed, and was accordingly admitted into the "London Surgical Home." On examination per vaginam, the tumour could not be felt by the finger, and the os was very high up, as if the uterus were drawn up by the tumour.

Feb. 10th, 1859. She was placed under the influence of chloroform. I made an incision from the navel to within two inches of the pubes, and carefully cut down to the peritoneum, which was then opened to the same extent. The tumour then presented itself, and passing my hand around it, I found there were hardly any adhesions. I punctured a cyst, and about ten pints of thick steatomatous fluid flowed through the canula. This fluid was mixed with a thick pasty, fatty substance, which obstructed the canula. I now attempted to draw the tumour out, but not succeeding, punctured it a second time, and drew off five pints more of the same sort of fluid. As the tumour could not yet be withdrawn, I lengthened the upper end of the incision about two inches, and punctured another cyst, and then succeeded in removing the mass. There were three points of adhesion with the omentum, which were torn through. When the tumour escaped through the incision, it dragged the uterus out with it, and examination showed that the uterus and its cervix formed two distinct and separate portions. The clamp was now fastened on to the pedicle close to the cyst, and the latter cut off. The uterus returned to its proper position. The edges of the wound were brought together with iron wire sutures, the pedicle brought out at the lower end, and the whole covered with wet lint. The many-tailed bandage was then applied. She now had two grains of opium, and one grain every six hours afterwards. The next morning the pulse was 100. Occasional pains in the abdomen, which was also tympanitic. At 6 P.M. she suddenly fell into a state of collapse, and died at 10.20 P.M., about thirty hours after the operation.

A further examination of the removed mass showed it to contain a large quantity of loose hairs, mixed with a thick steatomatous matter. Hairs were also developed, in various proportions, over the whole internal surface of the cyst, and in many parts were thickly massed together. In the centre of the cyst there was a large development of bone, containing many perfect teeth.

Post-mortem seventeen hours after death.—The omentum was a good deal discoloured, of a darkish colour, thickened, injected. The parietal peritoneum was inflamed and scarlet in patches for some distance round the incision. The small intestines were slightly agglutinated together, chiefly on the left side. The recto-vesical pouch was intensely injected, and contained a little bloody serum. A small quantity of cheesy matter (the contents of the removed cyst) appeared on one of the intestines. The liver was bound to the diaphragm by old adhesions. Kidneys healthy. The heart was very small, and on the right side very thin (barely an eighth of an inch). Lungs healthy. The os uteri admitted a sound for about an

inch, and was situated in its normal position. The neck of the uterus was situated about an inch from the body, the two being connected only by a small impervious band of membrane. The uterus thus lay loose in the pelvis, having no direct or continuous communication with the os itself except through this membranous band. The mammæ were well developed.

Case XIII.—*Ovarian dropsy, four years' duration: Ovariotomy: Death: Autopsy.*—Mrs. D., æt. 35, has had four children, the last born in 1853. After the last confinement was ill for a long time with pain in the lower part of the abdomen. Four years ago a tumour appeared in the right side of the hypogastric region. She was subjected to a variety of treatment, but the abdomen increased in size, and tapping was performed in August, 1858. The paracentesis was repeated in six weeks, and again in November 4th, December 10th, and January 18th, 1859. She was admitted into the "London Surgical Home" in February, 1859. It was evident that extirpation afforded her the only possible chance, and this was even more remote, because, as I ascertained, she had been a hard drinker. She decided, however, to undergo the operation; so she was prepared by tonics, warm baths, and gentle aperients, and on February 24th, 1859, I operated. She was placed under chloroform, and I made an incision about seven inches in length between the umbilicus and pubes, and carefully cut down to the peritoneum, which I then opened, and let out forty-five pints of fluid. The ovarian cyst now appeared, and I passed my hand round it. I found only a few adhesions, but these were very strong and thick—one especially, which passed up to the edge of the liver. I now punctured the cyst and let out several pints of fluid, and then easily drew the whole mass out of the abdomen. I tore through the smaller adhesions, but the one which extended to the liver, and one of the others, were so thick, and contained such large vessels, that I passed a twine ligature around them before dividing. The clamp was then fixed on the pedicle, and the mass cut off. I then sponged the fluid out of the abdomen, and closed the opening with iron wire sutures, the pedicle being retained at the lower end of the incision. The whole was then covered with wet lint and a many-tailed bandage applied. Opium as usual was given.

On Feb. 26th, she had some sickness, and her appearance was unfavourable. On the 27th, vomiting was incessant, and she was almost pulseless. The train of bad symptoms continued, and on March 1st the vomited matter was pure bile. In the latter part of the day she had active delirium. She gradually sank, and died at 4.45 A.M., on March 2nd, six days after the operation.

Post-mortem twelve hours after death.—Firm adhesion of the wound had taken place. The peritoneum was much inflamed; a good deal of lymph had been effused, and glued the intestines together. The ligatures which had been returned into the cavity were surrounded by solid effusion. The liver was very pale, and so soft in texture as to break down on the slightest pressure. Kidneys enlarged and congested. Heart and lungs healthy. Uterus large and congested. Menstruation was taking place. The vessels of the pedicle were perfectly obliterated by the clamp, and an injection of water could not be forced through them.

Case XIV.—*Ovarian dropsy in both ovaries, five years' duration: Removal of both at one operation: Cure.*—Mrs. W., æt. 45, married,

two children. The history I received was shortly as follows:—"Five years ago she had a large annular induration of a deep-brown colour over the ala nasi. This was followed by a deep-seated glandular swelling behind the left clavicle, having an osteo-sarcomatous feel. It soon disappeared under treatment. Soon afterward she suffered from symptoms denoting pressure in the recto-vaginal pouch; an examination by the rectum showed a hard nodulated mass, which was tender to the touch, which could also be felt through the vagina, and was situated at its upper and posterior part behind the uterus. This was also relieved by treatment, but soon after the abdomen began to enlarge. Four years ago she was tapped, and a house-pailful of albuminous straw-coloured fluid was withdrawn. Fourteen weeks subsequently the operation was repeated. Until a year ago, she was tapped at intervals of three or four months, since which not more than seven or eight weeks have elapsed between the operations. Latterly, since the abdomen has become more rapidly distended, there has been marked emaciation and loss of power. The urine has never been albuminous."

I saw her in February, 1859, and found her desirous of undergoing any operation which could afford a remote chance of cure. After due preparation, therefore, I determined to extirpate.

February 25th, 1860. She was placed under chloroform. I made an incision about six inches in length, and divided the structures down to the peritoneum, which was then opened, and several pints of fluid let out. A substance resembling a large caulitlower then presented itself, which proved to be a growth attached to a large mass of cells of the right ovary. There were only a few moderate adhesions which easily broke down, and I pulled the mass out through the wound. The pedicle was short, and being enclosed in the clamp, the cystic mass was cut off. This being done, another mass, the size of a child's head, was visible in the left side of the abdomen. I found it to be a mass of cystic disease attached to the left ovary. It was so firmly adherent that I could not move it. Careful examination showed that this did not arise from ordinary adhesions; but it appeared as though the mass were entirely surrounded by a layer of the pelvic fascia. With a good deal of trouble I managed to insinuate my hand between the cyst walls, and thus succeeded in enucleating the mass, repeatedly breaking down cysts, each containing fluid of different colour and density. In three places the union was so complete and intimate that I was obliged to use the écraseur to divide portions of the adhesion. I was thus enabled to withdraw the mass, and passed a strong whipcord ligature round the pedicle, and bringing it close to the clamp already fastened to the right pedicle, I tied it to one of its blades. I now carefully sponged all the fluid out of the abdomen, and then closed the wound with iron-wire sutures, and retained the clamp with both pedicles at the lower extremity of the incision. Wet lint was put on, and the many-tailed bandages tightly applied. From this time she steadily progressed. The clamp was removed on the seventh day. On the eleventh, the bowels were moved by enemata; and on the fourteenth day she was removed to the sofa. She is now quite well.

Case XV.—*Ovarian dropsy, two years' duration: Ovariotomy: Death: Autopsy.*—Miss D., æt. 35, unmarried. For several years has suffered much from indigestion. During the last two years she has gradually wasted a good deal about the neck and shoulders, and, at the same time, the abdomen has progressively enlarged. There is now indistinct fluctuation and an irregular lobulated feel, denoting multilocular ovarian dropsy.

March 26th, 1859. I introduced a very small trocar as an exploratory needle, and withdrew a small quantity of thick, highly albuminous fluid. A few hours after this some sickness and faintness came on, but were easily removed.

After considering the whole facts, the patient consented to the operation of extirpation, which, after due preparation, I determined to perform.

April, 1859. She was placed under the influence of chloroform, and I made an incision about five inches long between the umbilicus and pubes. When the peritoneum was divided, a good deal of ascitic fluid escaped. The cyst was now exposed, and with a trocar I punctured and drew off what fluid I could. I then found the adhesions to be very strong to the colon and bladder, and I had great difficulty in separating them, but by a good deal of manipulation I ultimately succeeded in drawing the tumour out of the abdomen. The pedicle was very short and thick, and having been secured by callipers, was retained at the lower end of the incision. The wound was brought together with iron-wire sutures, wet lint applied, and a many-tailed bandage over the whole.

During the first twenty-four hours she remained very much depressed, with a very flagging pulse. After this the abdomen became tympanitic, and the pulse very rapid. All the symptoms of violent peritonitis set in, and she died in fifty-two hours after the operation.

Post-mortem eighteen hours after death.—The peritoneum was very much injected, and lymph was thrown out over various portions of the intestines, glueing them together. The recto-vaginal pouch was highly injected, and contained a good deal of bloody serum. Other organs not examined.

Case XVI.—*Ovarian dropsy, three years' duration: Ovariotomy: Death.*—Miss F., æt. 27, unmarried. About three years since she perceived the abdomen to be larger than natural. It gradually continued to increase, and she had several severe attacks of peritonitis. She became very greatly debilitated, and it was necessary to place her under a course of iron and generous diet for some months before she was in a fit state for an operation.

May 16th, 1859. She was placed under chloroform, and I made an incision about four inches long in the usual situation, and opened the peritoneal cavity. The cystic mass then presented itself, and three cysts were successively punctured with a trocar, and then the mass was easily drawn out, the adhesions being very slight. The pedicle was secured with the callipers, and retained at the lower end of the wound, which was then closed with iron-wire sutures, wet lint being placed over the incision, and a many-tailed bandage applied round the abdomen.

She went on very well until the sixth day, when diarrhœa set in, and she died from the exhaustion on the seventh day.

Case XVII.—*Ovarian dropsy, four years' duration: Ovariotomy. Death.*—Miss M., æt. 32, unmarried. Four years ago, whilst menstruating more profusely than normal, she took a good deal of horse exercise, and soon afterwards had pain low down in the right side. Shortly afterwards she perceived an enlargement of the abdomen, which gradually increased, and was accompanied with wasting, especially about the shoulders. After a time she consulted Sir J. Clark, who pronounced it to be multilocular ovarian dropsy, and upon the whole a favourable case for extirpation. He recommended her to me for that purpose. After due prepara-

tion I proceeded to operate on July 8th, 1859. She was placed under chloroform, and I made an incision about four inches long in the median line, and carefully cut down upon the peritoneum, which I then opened. The cyst presented itself, and passing my hand around it, I found only a few adhesions between the fringe of the omentum and the upper part of the tumour. The cyst was punctured with a trocar, and the mass then easily drawn out of the abdomen. The callipers were passed round the pedicle, and the mass cut off. There was some little hæmorrhage from one band of adhesions, but it was stopped by cutting off the bleeding portion with the écraseur. The opening was then closed with iron-wire sutures, the pedicle being retained at its lower extremity, wet lint put over it, and a many-tailed bandage applied round the abdomen. She was ordered a suppository of two grains of opium whenever in pain. She soon revived from the effects of the chloroform, and violent sickness came on. It continued unalleviated by any means. On July 11th there was a good deal of tympanitis, and on the following day a little low fever with occasional muttering delirium. Menstruation appeared on the 13th. On the 15th there was a good deal of pain in the right shoulder, which felt tumefied and œdematous. The next day pain and swelling of the same character appeared in the left knee.

She gradually sank and died at two P.M. on July 17th.

CASE XVIII.—*Ovarian dropsy, three years' duration: Ovariotomy: Death: Autopsy.*—Mrs. W., æt. 32, married. Was confined three years since of her first child after an easy labour. When she recovered, she noticed that she was very large, and that there were some "lumps" on one side of the abdomen. The enlargement increased slowly until last year, when it progressed much more rapidly. Paracentesis was performed on March 25th, 1859, and thirty-two pints of thin straw-coloured, albuminous fluid were withdrawn. There still remained a tumour, the size of a large fist, in the right side. The abdomen rapidly enlarged again, and she wasted very much. Menstruation was normal until April last, and since then there has been constant sanguineous loss, sometimes profuse.

She had quite determined before she saw me to have extirpation performed; so after due preparation I operated.

July 19th, 1859. Being placed under the influence of chloroform I made an incision in the median line about six inches long, and gradually cut down upon and opened the peritoneal cavity. A good deal of fluid escaped, and the cyst presented itself. I gradually broke down the adhesions, which were very firm, and then punctured a large cyst, and subsequently another smaller one, and the whole mass was gradually withdrawn. The callipers were easily fixed upon the pedicle, which was long and thin, and the cystic mass removed. Examination then showed that some of the broken-down adhesions were freely bleeding, so I searched and found two vessels, which I was obliged to tie with twine ligatures. The incision was closed by iron-wire sutures, the pedicle being retained at the lower extremity, and the two ligatures applied to the vessel at the upper end, wet lint put on and the many-tailed bandage applied round the abdomen.

She soon rallied from the chloroform, and then had twenty-five drops of tincture of opium as an enema. In the evening a good deal of burning pain in the bowels came on, and large linseed-meal poultices were applied over the abdomen. The following morning there was considerable flatus, and one spot on the right side very tender on pressure. The peritonitis very rapidly increased, and she died at 4·15 P.M.

Post-mortem, twenty-four hours after death.—There was considerable effusion into the peritoneal cavity. In several parts the marks of adhesions which had been broken down were visible, especially on the round ligament of the liver. The peritoneum lining the walls of the abdomen was much injected and highly inflamed, but that covering the intestines was unaffected. The clamp had been applied two inches from the uterus, and there was no uterine inflammation.

The right kidney was slightly affected with fatty degeneration. The left healthy. Liver pale and bloodless, rather soft. Heart small, very flabby and soft.

Case XIX.—*Ovarian dropsy, three months' duration: Ovariotomy: Cure.*—E. N., æt. 25, single. Admitted into "The London Surgical Home" on November 1st, 1859. Had increased slightly in size for some little time, but had not noticed it particularly until six weeks ago, when she had very severe pain low down on the left side of the abdomen, deep in the pelvis. In a few days the pain became equally severe in the right side, and she very rapidly increased in size. At the same time the whole abdomen was very tender.

Nov. 3rd. I made a small exploratory puncture in the right semilunar line, and finding a thick albuminous fluid as the result, I immediately punctured the cyst through the vagina and drew off five pints of thick, dark fluid. There still remained behind a mass of smaller cysts, on the whole equal in size to a child's head. She was put upon a course of tonics, &c., with nourishing bland diet, and improved very much in general health. The cyst, however, soon began to refill. After much deliberation she decided to undergo the operation of extirpation.

Dec. 5th, 1859. She was placed under chloroform, and I made an incision four inches long, and carefully dividing the parts, opened the peritoneum, when the tumour presented itself. The adhesions were slight and easily broken down. I then punctured the cyst and let out what fluid I could. Seizing the tumour, and puncturing successively several small cysts to diminish the bulk, I drew it out. The pedicle was broad and short. The callipers were fixed upon it and the tumour separated. The uterus, which had turned out with the tumour, was returned to its normal situation. The edges of the incision brought together with iron-wire sutures. The pedicle retained at the lower end of the incision. The whole covered with wet lint, and the many-tailed bandage tightly applied. When she had recovered from the chloroform four grains of opium were given. Two hours afterwards, a good deal of pain came on in the abdomen, pulse 110, strong and wiry. She was bled to ℥xii., and took five grains of calomel with two of opium. She now went on well, and the clamp was removed on the 8th. On the 12th the edges of the wound looked sloughy. The wire sutures were removed and a poultice applied. On the 16th pain in the pelvis came on, with a good deal of restlessness. However, this was quite relieved by the sudden discharge on the 17th of about a pint of pus from the vagina. After this she very rapidly recovered.

Case XX.—*Ovarian dropsy, nine months' duration: Ovariotomy: Cure.*—J. B., æt. 18. In June last year she first perceived a slight swelling on the right side of the abdomen, following an attack of peritonitis. After this she rapidly increased in size about the abdomen, and wasted much about the shoulders. She underwent various treatment

without benefit, and applied for admission into "The London Surgical Home" in February, 1860. I examined her, and found her suffering from mutilocular ovarian disease of rapid growth. She consented to have extirpation performed. After due preparation, she was on March 22nd, 1860, placed under the influence of chloroform, and I made an incision about five inches in length in the median line, and carefully opening the peritoneal cavity, exposed the cyst. The adhesions were very slight. I punctured the cyst with the trocar, and then, without much difficulty, withdrew it from the abdomen. The pedicle was temporarily secured by callipers and the mass cut off. After satisfying myself that there was no hæmorrhage, I passed a double whipcord ligature around the pedicle, tied it tightly, and then removing the callipers, allowed the pedicle to return into the abdomen. The edges of the incision were brought together by iron wire sutures, the ligature of the pedicle being retained at the lower end, covered the whole with wet lint, and applied the many-tailed bandage tightly round the abdomen.

After the operation, opium was administered by the rectum as often as necessary. She went on without any unfavourable symptoms. The bowels were moved on the 28th; the sutures were removed on the 31st, and the ligature of the pedicle came away on April 5th. A small abscess formed in the track of one of the sutures which caused some little trouble, but she left the "Home" on May 17th, perfectly cured.

Case XXI.—*Ovarian dropsy, some years' duration: Ovariotomy: Death.*—Mrs. B., æt. 35, married.

This lady had suffered for some years from enlargement of the abdomen, and latterly had been tapped many times at gradually diminishing intervals. She had wasted a good deal, and her general health had become very bad. The operation of extirpation had been recommended to her some months before she consulted me, and her case at that time was spoken of as a favourable one for it. I also recommended her to have it performed; but she deferred it for some months, and when at last she agreed to it, she was in a very much less favourable state, and her general health was very materially affected.

April, 1860. Being brought under the influence of chloroform, I made an incision in the median line, extending from the umbilicus to within two inches of the pubes, and, gradually cutting down, opened the peritoneal cavity. A moderate amount of ascitic fluid escaped, and the cyst presented itself. Passing my hand over it, I ascertained that the adhesions to the omental fringe were slight, but that those in the pelvis were much firmer. I emptied the cyst as far as practicable with a large trocar, and then gradually breaking down the adhesions, withdrew the mass. The pedicle, which was moderately thick, was secured temporarily with the clamp, and I removed the tumour. After ascertaining that there was no hæmorrhage of any consequence, I passed a double whipcord ligature through the pedicle, and tied it tightly; then, removing the clamp, allowed the pedicle to return into the abdomen. The incision was closed with iron wire sutures, the ligature being retained at the lower extremity. Wet lint and a many-tailed bandage were applied.

She soon rallied from the chloroform, and appeared to go on very well for twenty-four hours, but after that she rapidly sank, and apparently died from exhaustion on the second day.

Case XXII.—*Ovarian dropsy, two years' duration: Ovariotomy:*

Death: Autopsy.—Mrs. P., æt. 43, married, no children. Enjoyed average health until Sept., 1858, when she was seized with severe pain in the left side of the lower part of the abdomen. It was not relieved by remedies, and was succeeded by gradual enlargement. Menstruation became irregular in its occurrence, but moderate in quantity. She increased so much as to require paracentesis in Sept., 1859, when three gallons of fluid were taken away. She refilled in ten weeks, and was again tapped. Again in six weeks, then in eight weeks, subsequently in eight weeks, and again in five weeks. She was tapped six weeks ago, and now measures fifty-seven inches in circumference. The emaciation is extreme, and the breathing very short. The chances afforded by extirpation were very remote, but she resolved to have it performed.

July 17, 1860. Being placed under chloroform, I made an incision six inches long between the umbilicus and the pubes, and cutting down to the peritoneum, opened it and exposed the cyst. This I now punctured, and let out a large quantity of fluid. A mass of cysts remained, which, notwithstanding repeated puncturing, could not be diminished in size. I was, therefore, compelled to enlarge the incision upwards. I found the adhesions very firm to the omentum, and in the pelvis; however, I succeeded in breaking them down, and then with some difficulty, on account of its size, withdrew the mass. The pedicle was long and thin; I applied the clamp and then removed the tumour, subsequently securing the pedicle with a double ligature of Indian hemp twine. I now removed the coagula from the peritoneal cavity. The omental adhesions bled so freely that I was compelled to tie them in several portions. Having now closed the incision with iron wire sutures, I brought out the ligatures which surrounded the omental masses at the upper extremity, and the pedical ligature at the lower end, then put on some wet lint and the many-tailed bandage over the whole.

She rallied from the chloroform, but died in twenty-two hours, apparently from the shock and exhaustion.

Post-mortem sixteen hours after death.—Upon opening the abdomen, there were a few clots of blood, but very small, and only probably what had remained in the cavity after the operation. There were no signs of inflammation. The liver was pale and soft; heart flabby and its walls thin.

Case XXIII.—*Ovarian dropsy, four years' duration: Ovariotomy: Cure.*—Mrs. B., æt. 31, married, one child. Admitted into the "London Surgical Home," Oct. 15th, 1860. Four years ago she discovered a swelling on the right side of the abdomen, which very slowly increased until last spring; since which period it has rapidly grown larger. The general health unimpaired. Examination showed a multilocular ovarian cyst with some solid matter deep in the abdomen. Having determined to undergo the operation for extirpation, she was placed under a course of preparatory treatment.

November 1st, 1860. Being placed under chloroform, I made an incision about four inches long, and carefully opening the peritoneum, exposed the cyst. Passing my hand around it, I found it adherent only on the right side. I punctured it with the trocar, and drew off fourteen pints of thick dark fluid. Upon now further examining the adhesions, it appeared that they were exceedingly strong on the right side of the body of the uterus, on the right Fallopian tube, and upper part of the uterus. There was, moreover, an expansion eight inches wide, and very strong, which descended deep into the pelvis, being attached to the fundus of the

bladder, and apparently continuous with the superficial fascia of the right iliac fossa. It was freely supplied with bloodvessels, and contained several small cysts. I tied a portion of this expansion as low down in the pelvis as possible, and divided it with the écraseur. I then applied the callipers to the remainder, and separated it with the knife. In breaking down the adhesions between the cyst and the uterus, the junction of the Fallopian tube with the body of the womb was slightly torn, and bled so freely that I was compelled to bring it together with two silver wire sutures, which I cut off closely and left in. I now tied the true pedicle with three pieces of whipcord, and separated the tumour. During all this time the vessels of the cyst bled so freely that I was obliged to tie them also, which much retarded the operation. I now brought together the edges of the wound with iron wire sutures, leaving the pedicle inside, and the part of the adhesions enclosed in the callipers I brought out externally. I then covered the whole with wet lint, and applied the many-tailed bandage around the abdomen.

She had no unfavourable symptoms after the operation. I cut off the callipers from underneath with the scissors on Nov. 4th. The ligature of the pedicle came away on Nov. 11th, and she left the "Home" on Dec. 10th quite recovered.

Case XXIV.—*Ovarian dropsy: Multilocular: Extirpation: Recovery.*—N. L., æt. 48, single, admitted into the "London Surgical Home" October 10th, 1860. About ten months ago she suffered from shortness of breath and bad cough, accompanied by a swelling of the abdomen. In February, 1860, she first perceived a lump on the right side, about the size of a walnut, which has since increased in size. She has been under treatment for enlargement of the liver and for the dyspnœa. On examining her, I found her looking excessively sallow, with all the appearance of a patient suffering from malignant disease. A large multilocular ovarian tumour could be felt in the abdomen. She was ordered to take small doses of bichloride of mercury with bark, three times a day, and aperients occasionally. Under this treatment, which was continued for ten weeks, she gradually lost her unhealthy sallow appearance, and gained flesh and strength; so much so that, in consultation with my colleagues, it was agreed to be a fit case for operating upon. Accordingly, on Dec. 27th, the patient being placed under the influence of chloroform, I made an incision in the median line about four inches long, and exposed the tumour, round which I passed my hand, and found that there were no adhesions. I then drew off eight pints of thin greenish fluid. The tumour was then brought outside, and the callipers applied to the tumour just where it joined the pedicle, which was very short. There was one small cyst left which was not embraced by the callipers, but which was brought outside the wound, which I then fastened with iron-wire sutures. The patient was very comfortable after the operation, and continued so; and on the 30th I removed the callipers. There was slight hæmorrhage from a small artery, to which I applied the actual cautery. The small cyst in pedicle, and part of the larger one, left outside, did not separate in a fortnight. I therefore removed the whole mass by the écraseur; and the patient rapidly recovered, and left the institution in five weeks after the operation, in good health.

Case XXV.—*Ovarian dropsy: Multilocular: Extirpation: Death.*—M. M., æt. 46, single, admitted into the "London Surgical Home"

Dec. 7th, 1860. She has always enjoyed good health until two years ago, when she began to get thin and weak, and felt a pain in her right side, where a very small swelling could be discovered, which rapidly increased in size, and continued to do so until about a year ago, when she was tapped for the first time, twenty-eight pints of dark-coloured fluid being drawn off. Since then she has been tapped four times, the quantity of fluid increasing; and last time, six weeks ago, there were thirty-eight pints of a much lighter coloured fluid. On examining her, I found an immense ovarian cyst extending over the whole abdomen, and pushing the diaphragm high up. Her body measured 51½ inches round, over the umbilicus. Dec. 11th. I tapped her, and drew off forty-four pints of colourless fluid, resembling pure albumen, which was so thick that it escaped into the pails like treacle. After she was tapped, I could feel a good-sized solid tumour on the right side, apparently very adherent, in the central line of the abdomen. The body now measured only thirty-eight inches round. The patient was ordered steel and generous diet.

Dec. 27th. The patient being under chloroform, I made an incision in the median line about six inches long, which, on account of the adhesions, extended right into the tumour, and twenty-two pints of thick albuminous fluid, tinged with blood, escaped therefrom. Passing my hand round, I then found that there were adhesions in several places, which I broke down. Besides the large cyst, from which the fluid came, there were several masses of apparently solid substance, irregular in size and shape, all, however, attached to one pedicle, which was embraced with the callipers, and the tumour removed by the knife. The parts where the adhesions had been, oozed considerably, but nothing was done to arrest this, as the surface was too large to ligature. It was judged that the bleeding would not go on to any alarming extent, and the edges of the wound were brought together with iron-wire sutures, the callipers with pedicle of the right ovary being left outside. After the operation she was very sick, and continued so for some hours. The tumour weighed 4 lbs. 6 oz., without calculating the fluid drawn off; and besides the one large cyst, consisted of several large irregular masses of apparently solid substance, which, when cut into, resembled honeycomb, and also rather like colloid cancer. It really consisted of innumerable small cysts, one within the other, some containing a dark sanguineous-looking fluid, others a colourless fluid like pure albumen. 10 P.M., pretty comfortable; pulse 90. The sickness continued, nothing seeming to stop it, and symptoms of low peritonitis came on; and on the 29th she suddenly sank, and died.

Post-mortem.—All over the abdomen were traces of peritonitis, with large quantities of fresh lymph. The kidneys were about the normal size, but there were traces of pus in them. There were several large clots of blood among the intestines, which seemed to have come from the parts of the abdominal parietes in which there was so much hæmorrhage during the operation. The heart was healthy; the right lung was very much engorged; the left healthy; the liver was enlarged, and affected with fatty degeneration; the spleen also slightly enlarged. The brain was not examined.

This was one of those cases where the contents of the cysts, as shown by tests, consisted of almost pure albumen. Such cases are, in my opinion, among the most unpromising for treatment; and this in some measure is, I feel sure, due to the ill effects of so large a drain of albumen from the blood. In my experience, a fatal termination will well-nigh always follow.

CASE XXVI.—*Ovarian dropsy: Ovariotomy: Cure.*—Miss W., æt. 48; admitted into the "London Surgical Home" February 1st, 1861. Always enjoyed good health until about a year ago, when she began to suffer from spasm in the abdomen. In March, 1860, she first noticed a swelling in the lower part of the abdomen, and this has subsequently gone on increasing, but has caused her little pain. Menstruation has not occurred since September last; prior to that date it had always been very regular. She consulted Sir C. Locock on two occasions, and that distinguished physician diagnosed ovarian dropsy, and recommended her to me to have the operation of extirpation performed.

On examination, I made out the existence of a multilocular ovarian tumour, and in addition the presence of considerable ascitic fluid. On March 2nd, 1861, before commencing the operation, a very small quantity of chloroform was given by inhalation, but the pulse fell so low it was stopped, and she remained in a half-conscious state during the subsequent proceedings. An incision was first made in the median line, about two inches long, and a quantity of ascitic fluid evacuated from the peritoneum, together with a few long-stalked transparent hydatiform looking cysts attached to the ovarian tumours. The abdominal incision being enlarged, the hand was introduced, when a congeries of cysts was encountered, forming two principal masses, besides a large cyst attached to the right ovary. The large cyst was tapped with a trocar, and its highly albuminous contents emptied. A further enlargement of the incision became necessary on account of the large size of the cyst with its adherent supplementary masses of smaller growths, one of which laid rather on the left side, and the other deep in the pelvis. In the removal of the morbid mass the intestines were unavoidably much exposed. The pedicle was longer than usual and very slender: it was fastened by a clamp, and the tumour cut from it. A further examination now showed the existence of a round, hard fibrous tumour, of the size of a large hen's egg, attached to the left ovary by a pedicle. I at once transfixed its pedicle with a needle armed with a double ligature of Indian hemp, and tying each half of this firmly, cut off the tumour. The intestines were then carefully replaced. The abdominal incision was next closed with silver-wire sutures, dressed with wet lint, covered over by some napkins, and lastly by a many-tailed bandage.

The pulse varied and was weak after the operation, and she was very sick. Some brandy was given, but the sickness continued the rest of the day. The pulse was 68 early in the evening, and later 84. Three grains of calomel were given at 8 P.M., and repeated at midnight.

March 3rd. Has had a tolerably comfortable night, but still has nausea. Very little pain; pulse 78; skin most. In the evening, being rather faint, she was ordered an injection of half a tea-cupful of beef tea and half an ounce of wine. To take a mixture of bark with sulphuric acid.

March 4th. A dose of her mixture, at 1 A.M., caused a return of the sickness. Ordered soda-water and milk. Clamp removed.

March 5th. More comfortable; has slept well; wound looking well; tension of the abdomen which appeared yesterday evening is now much diminished. The injections of beef tea and wine have been persisted in every four hours since the 3rd. To be continued.

March 7th. Very comfortable. On the 8th was able to take a mutton chop for dinner. 10th. Ligature came away.

12th. Still goes on well, and promises to be soon completely recovered.

18th. Sitting up, feeling quite well. The wound completely healed.

Remarks.—This case is remarkable by the circumstance that both ovaries were removed on account of disease, and by the peculiar agglomeration of great numbers of hydatiform cysts, or sacs, about the great ovarian cyst; as though the abnormal reproductive power of the sac had taken an outward direction, and complicated the usual endogenous by an exogenous development. The progress of this case was also particularly satisfactory and very rapid, as the patient was convalescent at the end of sixteen days.

This completes my record of cases in illustration of my last chapter, and I may remark of them equally with those illustrating other operative proceedings and pathological conditions, that it would be possible to turn them to much more account, and to deduce various practical considerations from them; but this work has extended to so many pages that I abstain from introducing further remarks, leaving it to the thoughtful reader to gather those other lessons from my experience which it may convey. At the same time I have endeavoured throughout to give the work as clinical a character as possible, by drawing attention to the most prominent particulars in the cases recorded, both by preliminary observations, and, in general, by concluding remarks.

THE END.

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